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CLAUDE BERNARD AND GLYCOGENESIS
James M. Olmsted

HEALTH SURVEYS FOR PEASANT COMMUNITIES
Robert T. and Kathryn T. Scholes

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I. Description of Study
II. San Nicolás and Carquin on the Coast
Ruth L. Huenemann and Carlos Collazos C.

BOOKSHELF ON NUTRITION AND THE PRESCHOOL CHILD
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THE MEANINGS OF FOOD
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RESISTANCE OF THE OBESE TO REDUCING
Stanley W. Conrad

Dining Rooms for Ambulatory Patients

Improvements in Tableware

37th A.D.A. Annual Meeting, Philadelphia October 26–29, 1954

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Claude Bernard and Glycogenesis[1]

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Claude Bernard

MY interest in Claude Bernard's work on glycogenesis was first aroused by Dr. J. J. R. Macleod, who in the early 1920's was Head of the Department of Physiology at the University of Toronto where I was then teaching. Dr. Macleod at the time was considered to be *the* authority on carbohydrate metabolism. It was in his laboratory that insulin was discovered, for which work he eventually shared a Nobel Prize with Banting.

Practically every recent text in physiology begins its section on glycogen formation with a reference to Claude Bernard as the discoverer of glycogen, and indeed Dr. Macleod's own text, which we used in our classes, was no exception. Glycogen was, of course, only one of the great French physiologist's discoveries, and, in common with other texts, I noted in Macleod several passages beginning with the words, "Claude Bernard first pointed out. . . " But, when I came to study the matter more intensively, I concluded that the discovery of glycogen and its role in carbohydrate metabolism should be considered as Bernard's most striking, if not his greatest, achievement. I do not believe the history of physiology affords another so perfect example of first, mere suspicion of the existence of a certain physiologic process, then verification of its existence, and finally isolation of the products involved. The complete story was by no means worked out in a single set of experiments. More than a decade of constant research was required before the final isolation of glycogen was accomplished.

From the very beginning of his career, Bernard was interested in the carbohydrates. This was in 1843 at a time when great strides were being made in methods of chemical analysis. He thought it would be interesting to try to discover just what happens chemically in the body to different kinds of food substances after they have been digested and absorbed from the digestive tract.

BERNARD'S INTEREST IN SUGAR

He settled on sugar as being the easiest substance to test, and in his thesis for the doctorate of medicine, he recorded the results of some of his earliest experiments. He recognized that cane sugar is one of the staples of our diet, but when he came to inject a solution of this sugar directly into the blood stream of an experimental animal, it invariably appeared in the animal's urine no matter how weak the solution. If, however, the cane sugar was first transformed by treatment with gastric juice and then injected into the blood, or if he used glucose for the injection, no sugar appeared in the urine. Evidently there was a difference in the behavior of different sugars. Some could circulate in the blood unchanged, only to be eliminated by the kidneys; others disappeared from the blood as it passed around the body. What then was the fate of the sugar which disappeared?

The theory at the time was that only plants could *form* sugars. If carbohydrates were found in an animal, they could only be there because the animal had eaten some vegetable food. And, once having

[1] Presented at the 36th Annual Meeting of The American Dietetic Association in Los Angeles, on August 27, 1953.

entered the animal's body, sugar was thought to be destroyed by combustion in the lungs or in the capillaries. Since the time of Lavoisier in the late 1700's, it had been considered proved that combustion in the body took place in the lungs. The idea that the thin walled vessels in the lungs merely afforded an easy passageway for oxygen to enter and carbon dioxide to leave had not yet been developed. Hence, at the time Claude Bernard began his experimentation, sugar was known as "respiratory nutriment" and was thought to be acted upon in some way by the blood so that it was destroyed. As one can imagine, the tests for sugar then were none too delicate or too reliable, and if there was sufficient sugar in the blood to give a positive test, that was considered to be an indication of the diabetic state, i.e. abnormal.

In fact, one of the popular theories of the day regarding diabetes was that it was purely a digestive trouble. In the healthy person, the digestion of starches was thought to be a slow process taking place in the intestine, while in the diabetic person, the process was rapid, occurring in the stomach. Hence, the popular treatment, which was supposed to be quite effective, was merely "avoid eating starchy foods," and if sugar was still to be found in the patient's blood and urine, that meant that there was incomplete destruction of the sugar in the blood.

The tests for sugar on which Bernard relied had been refined by his friend and colleague, Barreswill. For a quantitative test, he depended on the ability of the substance to yield alcohol by fermentation with yeast. Barreswill had devised a qualitative test, using a copper compound which changed its color in a manner similar to the now-familiar Fehling's solution. Bernard, in his famous *Introduction to the Study of Experimental Medicine* (2), published in 1865, used an account of his approach to the problem of the disappearance of injected glucose as an example where the starting point of experimental research is an hypothesis or theory which may even be false. For, instead of finding an organ for destroying sugar as he had expected, he discovered an organ for making it.

PROOF OF SUGAR FORMATION IN THE ANIMAL BODY

The first link in the chain was to establish that sugar, i.e., glucose, was not an abnormal constituent of the blood of animals, but a normal one, and that it was present whether the animal had been fed a vegetable or meat diet. This link was forged in 1848 when he proudly presented before the Academy of Sciences in Paris a sample of alcohol which he and Barreswill had prepared by fermentation with yeast from a concoction of animal liver. The animal he chose was a carnivore, a dog, which had been fed for many days exclusively on meat so that there could be no question of the sugar having come from a vegetable source. He had wanted to show, he said, actual crystals of sugar, but since he had only been able to obtain a sticky solution like molasses, he thought for a demonstration the alcohol they had collected would have to suffice.

Having established the fact that the bodies of animals contain sugar, even if they are carnivores and are maintained on a meat diet, he argued that two features should be necessary to account for the presence of sugar, first there must be passage of blood through the organ manufacturing the sugar in order to transport materials to as well as sugar from it, and second there must be special glandular tissue present. In exploring different parts of the circulatory system for their sugar content, he found in the carnivore little or—as he claimed to the end of his life—*no* sugar in the blood of the portal vein going to the liver, while the blood in the hepatic veins leaving the liver had a considerable quantity. This was exactly what he was seeking. The liver must be the organ where the sugar was manufactured. He was right in principle, but even *his* methods, although they were the best available, were not quite delicate enough, for he should have found some sugar in portal blood even of a carnivore on a strict meat diet. We do agree, however, that under the circumstances he described, there should be a *greater* quantity of sugar in blood leaving the liver in the hepatic veins than entering it in the portal vein.

ROLE OF NERVOUS SYSTEM IN GLYCOGENESIS

This experiment, which he never ceased to quote, convinced him that instead of searching for something in the blood which, according to the prevailing theory, would be the precursor of the sugar he had found, he should look for it in the hepatic tissue itself. If the liver was putting out sugar in this fashion, this organ should have the known characteristics of glands. Bernard had had some experience earlier with experimental procedures on glands, for he had done some striking experiments on the salivary glands. Stimulation of the appropriate nerve had proved to be about the most effective way of making a gland secrete, and if the liver were really acting as a gland to secrete sugar, should not this method of approach produce results? He decided the vagi would be the most promising nerves to try, but stimulation of these nerves failed to show any increase in sugar production.

He then remembered the peculiar effects on salivation he had produced by wounding the brain of the experimental animal at the origin of the appropriate nerve. After this operation, saliva flowed in a constant stream, a phenomenon which he termed "paralytic secretion." So he tried wounding the brain in the region of the cerebellar peduncles near the spot where the vagi leave the brain and was

delighted to find an immediate increase in the sugar content of the blood.

On further exploration, he discovered that wounding a very tiny area in the floor of the fourth ventricle of the brain, by means of a mere prick of the needle, would cause so great a flow of sugar from the liver that it ran over into the urine and produced a state which he termed "artificial diabetes." This is his famous "piqûre" operation, which is a relatively simple one to perform, but which furnishes a most striking and satisfactory demonstration of the involvement of the nervous system in the control of glycogenesis in the mammal. Bernard was somewhat disturbed to find that his piqûre experiment worked even with the vagi cut, but that it did not do so when he cut the great splanchnic nerves. He then concluded that the vagi must serve as the sensory part of a reflex arc and the splanchnics as the motor part. The role of the adrenals, their innervation by the splanchnics, and their relation to the sugar content of the blood were yet to be discovered.

DISCOVERY OF GLYCOGEN

Bernard now set himself the task of determining the proportions of sugar to be found in the liver in different physiologic and pathologic states of the animal. Like a good chemist, he took duplicate samples for his tests. But one day, when he was pressed for time he tested one portion of the liver of a freshly killed animal immediately after sacrificing it, and then set the remainder aside overnight. The next day he tested his duplicate sample and was astonished to find much more sugar. Furthermore, when he consulted his notes he found that there was less sugar in the sample of liver he had taken immediately after killing the animal than he had obtained in his customary procedure when he allowed an hour or so to elapse after killing the animal before he took his liver sample.

What was the matter? Most of us, I am afraid, would be inclined to say to ourselves, if confronted with such results, "Was there something the matter with that animal, or did I make a slip somewhere? Better discard these results and do the experiment properly." But that was not Bernard's temperament. He was sure he had made no slip in his method; what he had observed must be a valid phenomenon. Now, what was different in the set up of this particular experiment from his usual procedure? It was merely that the time elapsing between the killing of the animal and the taking of the sample was different. The longer the liver stood, the more sugar he found.

This consideration led him to his most crucial experiment. He chose an adult dog which for many days had been fed exclusively on meat. Seven hr. after its last meal, he killed the animal by quickly sectioning the spinal cord at the base of the skull. He removed the liver at once without injury, preserving the attachment to it of the portal and hepatic veins. A continuous stream of water was now forced through the portal vein before the blood had time to coagulate and block the passage of the fluid. Early samples of the washings taken from the hepatic veins showed a considerable amount of sugar, but after 40 min. he could discover no trace of sugar in the perfusate, and a sample of the liver tissue dropped into boiling water likewise showed no sugar present. He now placed the remainder of the liver in a vessel and kept it at room temperature for 24 hr. At the end of this time, he found that the liquid which had seeped out around the liver had an abundance of sugar. And, upon injecting cold water with a syringe into the portal vein, he found that when it had traversed the liver and was collected from the hepatic veins it now gave a copious fermentation when yeast was added.

There was no doubt, then, but that there was some substance in the liver which was itself not sugar but which on standing was transformed into sugar, presumably by a "ferment," as he called it. Our term is, of course, "enzyme." To this hypothetical substance he gave the name "glycogenic matter" or simply "glycogen," that is, sugar-forming, and he used the terms interchangeably. This confirmed his original hypothesis that there must be special hepatic glandular tissue involved in the process.

THE BEGINNING OF ENDOCRINOLOGY

Since the sugar formed by this special tissue appeared in the blood rather than being secreted through a duct, he coined the expression "internal secretion" to distinguish the process. The exact wording of the first reference to what recently has come to occupy so prominent a place in physiology and which indeed seems now almost an independent science, viz., endocrinology, is to be found in a lecture Claude Bernard delivered at the Collège de France in 1855. The subject of this series of lectures was the glycogenic function of the liver, and in his fourth lecture he said: "This account of the liver shows very clearly that there are internal secretions, secretions whose products, instead of being poured out to the exterior, are transmitted directly into the blood." And in the following lecture, he enlarged on this statement in order to make his meaning perfectly clear and said: "There are two functions of the liver in the way of excretion: one, an external secretion, producing bile which flows to the outside; the other, an internal secretion forming the sugar which enters immediately into the general circulation."

In another lecture of this series, he likened the liver to a syringe filled with sugar which injects its contents little by little into the blood; if the rate of injection is too rapid for the physiologic needs of the animal at the time, sugar appears in the urine and

symptoms of diabetes appear. This is one of his earliest statements showing that already in 1855, he had in mind the idea that regulatory processes were constantly taking place in the living organism in order to maintain the physiologic conditions necessary for life. This idea he developed later, and it is known as his "doctrine of the internal environment," or as Cannon has termed it, "homeostasis"—one of the most fruitful conceptions ever introduced into physiologic thinking. In fact, it has been ranked by many as being on a par for importance with Darwin's doctrine of evolution.

ISOLATION OF GLYCOGEN

Bernard had, by 1855, established to his own satisfaction that the prevailing theories regarding glycogenesis were false; that the production of sugar was a phenomenon characteristic of both divisions of the living world, animal as well as plant; and that in the animal world carnivores as well as herbivores normally had sugar in their blood. Furthermore, he had pinned down the main site of production of sugar as taking place in the liver, but, so far, isolation of the precursor of the sugar which the liver poured out into the blood eluded him.

Both he and Barreswill tried every method they could devise and worked night and day on this problem. For example, he had earlier performed the experiment of giving an animal a soluble iron salt in its food, then injecting yellow potassium ferricyanide into the blood, and finding that bile secreted by the liver was now colored by the Prussian blue formed by the combination within the animal of the iron salt and the ferricyanide. He had hoped that by some odd chemical combination of this sort, he could cause the sugar to appear as an external secretion from the liver into the bile, but in this he was entirely unsuccessful. When, however, he turned his attention to less round-about methods and tried different ways of extraction of substances from the liver tissue itself, he did succeed, and in 1857 was able to give full directions for isolating his heretofore hypothetical glycogen.

He removed the liver as quickly as possible from the experimental animal, cut the organ into thin slices and plunged them into boiling water. Haste was necessary, for until the boiling water destroyed the ferment, as he termed it, the glycogen was continually being changed to sugar. After further boiling, the concoction was filtered. To this clear opalescent filtrate, alcohol was added, causing a white precipitate to form, which was separated and dried to a powder. This white substance contained no sugar, and he remarked that it had no smell or taste, but on the tongue it felt like starch. In fact, this "animal starch," as he called it, behaved like vegetable starch, for boiling it with mineral acids, allowing it to be acted on by diastase, and treating it with pancreatic juice, all transformed it into sugar. He had isolated his glycogen and at the end of his memoir he said (3):

"In resumé, after all the facts set forth in this work, we can conclude that the question of the formation of sugar in animals has made important progress through the isolation of the glycogenic material in liver tissue which is the constant precursor of the sugar.

"But there remains still to determine the organic composition of this glycogenic matter, as well as the exact anatomical and physiological conditions of its formation in its relations with the phenomena of development and different physiological conditions of the liver. Some experiments which I have already undertaken on this subject permit me to hope that it will be possible to go further into the question of glycogenesis, and to localize the formation of glycogen in special parts of the liver."

BERNARD AS A PERSON

This was typical of Claude Bernard. In the solving of one problem, there always arose questions which suggested new lines of research. In his own analysis of his method of approach to physiologic research, he said that although a variety of circumstances might serve as starting points, he thought they could be reduced to two chief types: (a) where the starting point was an observation, and (b) where the starting point was a theory or hypothesis. His discoveries regarding glycogenesis illustrate both types of approach, but he was the accurate observer *par excellence*, and his most striking discoveries were usually the result of somewhat unexpected observations. Indeed, Paul Bert, his favorite pupil and the successor to his chair at the Sorbonne, made a point of this in his oration at the unveiling of Bernard's statue which, until removed and melted down by the Germans in the late war, stood for more than a half century on the entrance to the Collège de France on the Rue des Écoles in the Latin Quarter of Paris where Bernard had labored all his adult life. Paul Bert said (4) that the sculptor had caught Bernard in a characteristic pose, as if he had just made a chance observation and was thinking, "What is the relation of this that I have just observed to what we already know? Is it something new and worthwhile following up?"

Bernard had completed the story of glycogenesis, in outline at least, by 1857 when he described his method for the isolation of glycogen, but he did not know that in the year before this, a German, Hensen, had anticipated him and had already published in a German scientific journal an account of the isolation of this substance. Bernard knew no language except his native French, and he was entirely ignorant of Hensen's work. I have never found a reference to Hensen in any of Bernard's writing. In any case, he was not over-anxious to claim priority for any of his discoveries and on

another occasion, when it was pointed out to him that something which he had just reported in a recent memoir had already appeared in English in an American scientific journal, he replied, "The question of priority is not the important one, the real question is whether the discovery is a valid and useful one."

The program for further research on glycogenesis which he outlined at the end of his memoir of 1857 was partially carried out in his later years. He showed that glycogen is present in the placenta before the liver of the fetus is sufficiently developed to function; he showed that certain regions of the liver contain cells which, with iodine, give the characteristic red color of glycogen granules; and he showed that the fate of glycogen in muscles is not the same as that of glycogen in the liver, i.e., not sugar but lactic acid is produced.

I think that you will agree with my earlier conclusion that nowhere in the history of physiologic research has an investigator worked out so complete a story as Claude Bernard did for glycogenesis.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Alfred Charles True—June 5, 1853–April 23, 1929

Much of our current knowledge of nutrition and nutritive values of foods had its origin in the investigations carried on in the experiment stations established in connection with the land-grant colleges and universities. Early direction and encouragement to this work was given by Alfred Charles True, who began his work with the U. S. Department of Agriculture in 1889 as Editor in the Office of Experiment Stations; in 1891, he became Assistant Director, and in 1893, Director. At first, the Office of Experiment Stations was mainly a clearing house for information. As more funds became available, research in the experiment stations was encouraged with advice and suggestion from Dr. True.

He was keenly aware of the importance of research and teaching, and devoted his administrative abilities to the development of both through the experiment stations. Through his association with W. O. Atwater, Dr. True became interested in human nutrition and investigation, which led to a close association with home economics. He recognized the social and economic values of research in human nutrition, and he believed in high standards of scientific accuracy in conducting and reporting research. He also saw the need for putting research findings into a usable form and encouraged the publication of bulletins for farmers and homemakers and helped to systematize the work of the home demonstration agents. He was a frequent participant in the Lake Placid Conferences and was active in the Washington meeting in 1908 when the American Home Economics Association was founded.

Alfred Charles True was born June 5, 1853 in Middletown, Connecticut, the son of a Methodist minister who was a professor at Wesleyan University. He prepared for college at the Boston Latin School, where he received a medal for scholarship, and graduated from Wesleyan University in 1873 with a classical education. From the same university he received his master's degree (1876) and an honorary D.Sc. in 1906. The first fifteen years of his professional life were spent in teaching, first in high school, then normal school, and later at Wesleyan University. The remainder of his life was spent in the service of the U. S. Department of Agriculture. He also served as the Dean of the first graduate school in agriculture held at Ohio State University in 1902 and of succeeding graduate schools (1906–16) under the Association of American Agricultural Colleges and Experiment Stations.

Breadth of vision, maturity of judgment, wisdom, tact, and kindness were some of the characteristics which made Dr. True a great administrator who won the confidence and loyalty of all who worked with him.

In his later years, Dr. True devoted himself to the history of the work which he helped to develop. He wrote *A History of Agricultural Extension Work in the United States, 1785–1923* (U.S.D.A. Misc. Pub. No. 15, 1928) and *A History of Agricultural Education in the United States, 1785–1925* (U.S.D.A. Misc. Pub. No. 36, 1929). A third monograph on experiment station research and development was nearly completed at his death on April 23, 1929.

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The Health Survey for a Peasant Community

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THE place of nutrition in the health survey should be generally known to the experienced field workers sent to underdeveloped areas. It is important that the field workers develop an appreciation of nutrition along with the very important perspective of the total health picture. Indeed a perspective of the total health picture is essential if a proper grasp of the multiple factors at work in health is to be gained.

Nutrition cuts through the many disciplines used in the conduct of a health survey, and thus its proper place must be better understood. Field workers in more highly developed areas, where living and cultural standards are at a "higher" level, have a more difficult time placing nutrition in its true place in the health survey than do those working in the more underdeveloped areas. This is readily understandable since the more obvious effects of undernutrition are not in evidence. The role of nutrition in total health is the context of the presentation of this paper.

AN OVERVIEW OF HEALTH PROTECTION

Health protection in underdeveloped regions must be geared to the whole plan of development. On a nation-wide scale it must not interfere with the other aims of the plan, including the social, hygienic, economic, and educational. Planners must consider the psychologic receptiveness of the people and the element of time needed to change habits, and take special care in selecting priorities.

Techniques are known that can deal with the vast majority of the great mass diseases very effectively. Environmental cleaning-up can take care of many diseases. The contact-borne types are harder problems, for man as well as environment must be controlled. Here, one cannot logically draw a distinction between nutrition, sanitation, preventive and curative medicine, and improvements of living standards. This orientation necessarily makes nutrition fit properly into a modern public health program.

An overlooked truism in general health work states that *health will not improve greatly by attacking only disease.* Nutrition, as probably the most basic need of people, remains an excellent example of this necessity in the less-advanced regions in general. It is often of special importance in cultures that are in process of change and will be explored further below. The closest of cooperation of many disciplines is necessary here as in other technologic fields.

As new and more potent disease-control weapons appear, entirely new problems enter into the scheme of health workers in the poorer regions. This fact makes awareness and cooperation in interdisciplinary approaches necessities and not options. The point can hardly be stressed enough: *cooperation of many agencies is essential to the final results of health improvement efforts*, if these results are to be a true advantage to the people concerned.

One easy way of analyzing health protection breaks this subject into six parts:

(a) The health survey.

(b) Organization of local health services.

(c) Definition of the function and scope of local health services.

(d) Needs for and training of different types of workers.

(e) Functions, type, and staff of the health center itself.

(f) Stimulation of community participation in the local health service.

The survey is the first requisite of the whole scheme; through it, the data needed for solving many of the problems expected in the future program are obtained. None of the work which follows the survey remains unaffected by it, and it properly influences every step in the plan of development.

USES OF THE SURVEY

The most common use of the survey is as a tool for improving health quickly. The less well-known approach is its use for long-range, permanent better-

ment of the health of the population. Certain points in these approaches are opposed, as the following discussion will show.

Traditionally—that is, in the "immediate healthfulness" scheme—the survey gives a base-line indication of the health situation. It furnishes the data on which to build changes. It points out ways of meeting opposition to change. An especially important function is that it helps to determine priorities. As a means of developing rapport and communication, which aids in present and future problem-solving, it commends itself on all counts.

Permanent health improvement is concerned with the very broad field of raising levels of living. Public health measures are very effective in decreasing death rates in underdeveloped areas, but they do not affect the other side of the coin—the high birth rates that normally prevail. Large populations combined with small resources help to depress the living level and with it the health level. A basic concern, then, is to bring about a drop in the birth rate to somewhere near that of the death rate. A program of population control, vigorously pushed and a part of a well-designed set of priorities, may furnish the key to the entire positive approach. Education and industrialization need speeding-up, forming the longer-range controls. Agriculture and foods are other approaches most intimately concerned in the process of raising standards of living.

Priorities, as indicated by the survey, may differ much in the two schemes. The more common "quick improvement" approach usually places communicable disease control, nutrition, and environmental sanitation at the top. Chronic disease, mental hygiene, and geriatrics are well down the scale and emphasized only in more developed cultures. By contrast, the permanent type, long-range scheme may emphasize first surgery and medicine with effective education and obstetrics-pediatrics services with education. Health education is pushed through all possible channels, and environmental sanitation and communicable disease control are given last priority. Food forms an elemental concern in both schemes of priorities, for any constructive change depends upon improving nutrition and agriculture.

The disparity between the logic and the practicability of application of the longer range approach is obvious under conditions prevailing in many parts of the world today. Its full application may be impossible or unwise (the survey should indicate this), but cognizance of the scheme should be helpful in any case.

PERSONNEL AND SAMPLING

One well-trained person can make a pilot-type of survey in a matter of weeks. A small group of local health personnel can do the same. The more elaborate general survey needs the services of well-trained specialists, helped by local personnel. Such a specialist team, consisting of clinician, anthropologist, and nutritionist, requires a minimum of about fifteen months to do the survey. The team members need intensive education to insure that they obtain good coordination and waste little effort. Interpretation of the data often requires outside expert aid, especially in the statistical analysis. Results should be made known to the people as soon as possible. In general, *no large survey should be made without being very sure that it will form the basis of a subsequent program of action.*

Sampling techniques must be adapted to the case in question. Their range of uses is very broad, from census types to societal stimulation for problem studies. Sampling should be used wherever possible for the sake of saving time and money.

ORGANIZATIONAL BASES OF THE SURVEY

Anthropology

The knowledge obtained by anthropologic and sociologic approaches enters into the body of the survey diffusely and in many ways. It ties in with many other disciplines, and its importance is such that the success of a health program may depend on an understanding of folk medicine and other beliefs.

The anthropologist can probably consider vital statistics and demography better than any other single member of the team. These subjects are fundamental to any program and hold possibilities that make or break any program of change that is projected. Health and its permanent and immediate effects, as mentioned above, relate directly to demographic principles. Proof of this statement exists in any successful health program. Wisdom dictates that fertility dynamics of the population be studied carefully. The inevitable population upsurge that results from the application of health principles in poor areas is no preconceived idea; it is a fact. Bigotry and ignorance can excuse nonrecognition of this elementary concept.

Conversely, other elements complicate the picture. A potential gain in manpower, with no more mouths to feed, results from certain simple and cheap control measures, such as are applicable to malaria. To net the benefit and negate the harm, the need is for balance in planning in health. Present tools make this possible, though certainly with difficulty. Research now indicates the probability of developments in the near future that will make it more easily attainable.

Anthropology contributes much in the field of health education. This seems the most valuable sphere of effort for the health worker in terms of the people's long-range benefits. It pays dividends in any program to study ways to make new techniques significant and to create reasons for habit-changing that are meaningful to the people. It also pays to study alternative means of teaching health education.

The leadership hierarchy and feelings of a population about introducing new things may influence the whole approach of the program. Information on systems of property management and data on land tenure concern the full use of resources. Economics, religion, and ritual represent areas of focus in many primitive cultures, and their use in a culturally oriented program deserves full exploration.

Cultural factors affect nutrition and eating habits markedly. This seems to be a most sensitive field, which is not surprising when one considers the psychologic depth of these life-time roots. To miss analyzing those aspects that affect nutrition means that the nutrition program may misfire through errors both of omission and commission. Either type of error jeopardizes the larger health effort.

Communication makes any program tick—if it is good. If it is poor, it may slow things down beyond all decent functioning. Without good contact, there is no hope of giving rapport and cooperation the vital parts they should play in any interaction. Ingredients of special note consist of two components, neither of which is usually fully developed, and both of which are often lacking in the individual: self-respect and real esteem for others, both put at a deep feeling, not intellectual level.

Agriculture and Nutrition

Nutrition and agriculture depend closely on each other. Agricultural problems need an agronomist for the best analysis; in his absence, the nutritionist must collect most of these data. The nutritionist and/or agronomist must recognize the importance of working closely with the physician and the anthropologist, since most of this background is also unstandardized and often largely unknown.

The relation of food and agriculture to demography has already been discussed. It is worth more than passing notice that the substitution of underfeeding and malnourishment problems for public health and medical problems can hardly be a firm base for any type of development. Agriculture and foods must develop in some near ratio to that of the population, or the people suffer. The scientific and lay publications now recognize and draw attention to this most pertinent relationship of food, agriculture, and demography.

A big step toward meeting the food problem has come in recent years. The development of economic and practical means of cultivating yeasts and microscopic green plants gives encouragement that the protein lack may be relieved. For the present, however, conventional methods of food growing and standard food sources continue as the vital factors in bettering nutrition—caloric, protein, or otherwise.

The agricultural survey functions in a number of important ways. Through it, food supply facilities are examined in detail, including cash crop and trade facilities. It tests and develops recording techniques, devises means of making simple records in any community in the locality, and trains the recording staff. The literature indicates ways of solving technical details and of organizing the statistical treatment, not only of these data but of the entire health survey.

The dietary survey of necessity accompanies or follows the agricultural survey if one is to discover everything possible about the nutritional problems. The survey provides information about the dietary faults that require correction, the loss of nutrients in preparation, the failure to use suitable foods, the supply of these foods, and the causes of any shortages. It also makes possible answers to problems of correcting shortages and includes consideration of the labor supply, soil availability and suitability, social repercussions of labor diversion, and possible importation necessities.

One can easily see the interrelation of nutritional and agricultural problems in underdeveloped regions with medical, economic, and sociologic problems. In such problem areas, the investigation, recommendation, and solving of one problem hinges directly or indirectly on meeting the problems in the other areas as well. The investigation of one area must take precedence over another from time to time; the agricultural survey may logically precede the nutrition or dietary survey in order to understand the background properly and implement the improvements in view of the total picture. This thorough kind of understanding promotes real improvement and permanent change rather than temporary change and questionable improvement while an outside force is exerting pressure.

Physical Health

Any health survey requires a valuation of physiologic development. A "standard" must be established, but lack of facilities in primitive areas often prevents this. Comparative measures then act as a substitute. The other aspects of the survey must mesh closely with the data on morbidity and physiologic development. To interpret any one set of these data without regard to the others means the loss of a valid answer.

The effects of bioecology on the people are well known. They may be direct and quick in action or indirect and slow. The survey team needs a certain amount of biologic orientation even though a complete biologic survey cannot be made.

Public Health and Medical Activity

These two fields of investigation remain fundamental to the entire work. In both categories, one needs background data on the organization, legislation, finances, staffing, institutions, training, and specific activities in the population. Once again, correlation with other aspects of the survey gives the only full answers to the problems posed.

A NOTE ON THE HEALTH INDICES

The term "health indices," as used in this paper, simply means data on the state of health of the individual and the community.

A compilation of the whole series of indices, covering the broadest possible range of activities related to health, has been made. If one selects carefully from them, it is easy to come up with a series suited for a pilot-type of study, but a warning is relevant here: *any particular study, pilot-type or general, requires modifications and qualifications that cannot be foreseen in the generalized indices.* This necessitates their intelligent and discriminating use, and results depend on the program set up under these conditions. Such indices are not intended to be numerical in type; they cannot remain static in content. They do afford orientation to the health worker in the less developed areas, especially the warmer regions. Even as the team gathers data for use under the conditions prevailing, these conditions change. The survey, however, remains basic to evaluation of the existing conditions and essential to proper realization of change.

SUMMARY

This paper attempts to present certain concepts that are thought to be essential to health survey work in less developed areas.

Stress throughout is placed upon coordination of the several disciplines involved in health work. Nutrition, agriculture, anthropology, physical health, public health, and medical activity comprise a group of inseparables in such a context. Nutrition is an example of a function that works through all aspects of this health approach.

In addition, functions of other work in development make the activities as a whole more complex. Intelligent planning becomes an absolute essential.

The premise of the whole survey is this: it is essential to know as precisely as possible the problems with which it is necessary to deal. Devising adequate approaches is then simplified, and ultimate success in developmental efforts is more nearly assured.

Addendum

Limitations of space make it necessary to publish the full text of this article with its bibliography as a reprint. This includes the full set of indices making up the methodology of a survey. Reprints are available on request to the Department of Nutrition, Harvard School of Public Health, 695 Huntington Avenue, Boston 15.

The Challenge to Medicine

Contemporary medicine is more than drugs and data. It is a discipline that emphasizes observation and comparison of various sorts of ailments, requires analysis of all facts concerning patients, and depends on logical analysis. Above all, it demands inquisitiveness. It demands the sort of doctor who is continually dissatisfied with what he knows already, who keeps enlarging his knowledge and his capacity to use it, who preserves a high index of suspicion in treating patients. Such a physician, confronted with what may look like a trivial ailment, will refuse to settle for the simple answer until he has ruled out the possibility of rare or complicated ones. Scientific medicine is forever trying to penetrate a never-never land, to recognize what has hitherto not been seen, to treat what has hitherto been beyond treatment, despite the statistical rarity of the disease involved. The continual demand upon the physician is to practice at the highest level of scientific competency, and the imposition of standards by various accrediting groups aims to encourage continued practice at this level. . .

Some physicians are good ones by reason of a natural flair for medicine. Their capacities are so marked that they necessarily practice medicine of the highest standards whether they be specialists or men in general practice. The rise of scientific medicine in the U. S., in fact, was the work of such unusual men, although many of them were educated in schools that were once substandard.

In each generation of physicians there are exceptional men of high caliber, but today the medical profession cannot depend simply on exceptional men. It must make the unexceptional man dependable, must encourage him to develop an enthusiasm for scientific medicine, and provide a stimulus for lifetime study. This task, of course, falls principally upon the medical schools and the hospitals.

Medical-school education today is a complex matter involving traditions and finances, quality of faculty, relationships with hospitals, state laws, medical-association standards, local and national needs for physicians, together with teaching methods, in which there is increasing experimentation, prompted by an almost universal desire among the schools for self-improvement. Generally speaking, however, the effectiveness of a medical school depends on the thoroughness of its bedside and clinical instruction, in the course of which a student is made part of a team of doctors who examine, diagnose, consult, and treat, testing the correctness of each procedure by free interchange of opinion when the patient gets well and by autopsy when he dies.—*Contributed by Mary P. Huddleson. Clipped from "The M.D.'s Are Off Their Pedestal" by Herrymon Maurer writing in Fortune, February, 1954.*

Nutrition and Care of Young Children in Peru

I. Purpose, Methods, and Procedures of Study[1]

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IN ANY country, a nutrition program should be based on needs. To be effective, it must also relate itself acceptably to existing interests and practices. The present study of the nutrition and care of Peruvian children from birth through the weaning stage was made to help analyze the needs of this nutritionally vulnerable age group and to gain a picture of existing practices relating to those needs. Interest in child health in Peru is widespread, since the Peruvian culture, like many others, is in some of its aspects essentially child-centered. Although this study was designed primarily to aid in the development of a sound child health program in Peru, it may have implications for both new and established programs in the United States and elsewhere.

SCOPE OF THE STUDY

Surveys of the nutrition and general care of children under three years of age were carried on in five communities in Peru: in San Nicolás, a cotton hacienda (plantation) of the coastal plain; in Carquin, a fishing village on the coast; in Chacan, a farming community of the Southern Sierra; in Vicos, a large hacienda of the Northern Sierra; and in Yurimaguas, a jungle town. These surveys were an accompaniment to a study of family food consumption carried on simultaneously in these same areas (1). A random sample of approximately 10 per cent of the households in each community was chosen for the family survey, and the ninety children under three years of age in these households constituted the sample for this study. Quantitative daily food intake of each non-breast-fed child and information regarding various phases of child care were obtained for all children in the study, as well as a limited amount of information about the mother's attitudes and beliefs in regard to child care and feeding. At the end of the survey period, a physical examination of each child was made by a physician with special training in the assessment of nutritional status.[3]

GENERAL PROCEDURE

Agencies

The primary sponsoring agency for this study, the Nutrition Department of the Peruvian Ministry of Health, obtained the cooperation of numerous other agencies rightly concerned with health and nutrition work, since it was apparent that an effective nutrition program for Peru could not be accomplished by any one agency alone. Among those included were other departments in the Ministry, such as the Departments of Biostatistics and Health Education; the Departments of Health, Education, and Agriculture of the Servicio Cooperativo Inter-Americano[4]; the Ministry of Agriculture of Peru; the Health Department of Ica, Peru, affiliated with the Rockefeller Foundation; the Food and Agriculture Organization of the United Nations; and the United Nations International Children's Emergency Fund. Numerous individuals from other agencies offered technical assistance. In addition, assistance was obtained from local agencies and individuals at the various survey sites. Permission to carry on the surveys was obtained from local town officials.

Staff

Field staff for the different surveys varied somewhat. The nucleus of three or four dietitians em-

[1] Work done in partial fulfillment of the requirements for the degree of Doctor of Science in Hygiene in the field of nutrition, Harvard School of Public Health, Boston. Received for publication March 19, 1954.

[2] The author wishes to acknowledge the help of Dr. D. Mark Hegsted, Harvard School of Public Health.

[3] Dr. Carlos Collazos C., Head, Department of Nutrition, Ministry of Health, Lima, Peru.

[4] The United States-Peruvian cooperative program under the Institute of Inter-American Affairs.

ployed by the Ministry of Health was augmented to form a staff of from ten to fifteen workers by adding personnel from cooperating agencies and from the communities surveyed. These included auxiliary health workers (public health nurses' aides), anthropologists, teachers, home agents, a dental student, and a nurse. Both men and women were included.

Workers were given a limited amount of instruction in general interviewing techniques and in the specific aims and methods of this study, as well as an opportunity to observe and work with the most experienced interviewers of the staff before they gathered data by themselves. It soon became apparent from the resulting quality and completeness of the data that the several days devoted to the training of new workers was time well spent. Some instruction of interviewers in nutrition and child health helped arouse greater interest in their work and also helped them to gather more meaningful information. It was found a good procedure to have field workers tabulate and evaluate at least a part of their own data.

Living Accommodations for Field Staff

A brief description of living conditions in the field may be of interest, particularly to the reader who is contemplating such service.

While it would doubtless have been desirable for the staff to live in the communities surveyed, this was not practical in all areas because of the size of the staff. Consequently, living quarters were procured wherever they could be found near survey sites and ranged from the primitive to the modern. For the coastal surveys, workers lived in hotels—during the San Nicolás study, in a small, crude hotel; during the Carquin survey, in a comfortable, modern one.

Only during the Chacan survey in the Southern Sierra was it necessary for workers to live and work under somewhat uncomfortable conditions. Here they improvised living quarters in the school building, a mud-floored, unheated, adobe structure with a leaking roof of thatch. Gathering data involved walking many kilometers across a hilly, often muddy, terrain. Particularly the workers who were accustomed to living at sea level found this most exhausting at an altitude of about 11,000 ft. It was soon discovered, however, that good food and an ever-available supply of hot beverages could do much to bolster staff morale.

During the survey at Hacienda Vicos in the Northern Sierra, workers from Lima lived in a health resort famous for its natural hot baths and in hacienda headquarters, which had been ingeniously rebuilt for comfortable living by the Director of the Cornell University Applied Anthropology Project at Vicos. Meals were eaten here with the project director and his family. It was both interesting and enjoyable to note the variety in meals achieved by using the products of the hacienda garden and farm and only a few packaged food items from faraway Lima. All were prepared on a homemade brick stove and in a primitive oven, and were safely refrigerated with ice brought by an Indian runner from one of the 20,000-ft. glacial peaks that towered on the horizon. Gathering data at Vicos was done on horseback.

During the jungle survey in Yurimaguas, the field staff members from Lima lived in the Ministry of Health hospital, which is located just outside the city and administered by SCISP.[5] Health hazards were thus reduced to a minimum, for food was safely prepared, drinking water was boiled, and sleeping quarters in the hospital were screened. All workers from Lima had been immunized against yellow fever and throughout the jungle survey period took an anti-malarial drug regularly.

Gathering of Data

Field workers visited all households in the joint family food intake-child nutrition study once or twice daily for a period of seven, or, if possible, eight days in order to have one "practice day." Four families, three of them with children in the child study, or six families without children in the age group covered by this study constituted the usual case load. Workers obtained for each child: (a) a daily, quantitative record of food intake, (b) a record of the child's activity, and as opportunities presented themselves throughout the week, (c) information pertaining to the mother's diet during pregnancy and lactation, (d) the child's diet and care up to the time of the survey, and (e) the mother's attitudes and beliefs regarding these matters. To gain a quantitative picture, workers carried scales and weighed family food and portions for the children whenever possible. Data were obtained on other aspects of child life usually dealt with in health centers, such as sleep, bathing, play, toilet practices and toilet training, and immunization against disease, because it was felt that since the various areas of child health care are interrelated, a sound, balanced, child-care program, with nutrition assuming its rightful place in the total program, could be planned only if existing attitudes and practices in regard to the various aspects were known. Furthermore, since an evaluation of physical status and an attempt at establishing interrelationships between dietary intake and physical status were to be made, it was thought imperative to have some information, even though necessarily incom-

[5] Servicio Cooperativo Interamericano de Salud Publica, cooperative Public Health Service between the governments of the United States and Peru, administered through the Institute of Interamerican Affairs, Foreign Operations Administration.

plete, regarding factors other than food consumption and feeding practices that affect physical condition, lest all physical findings be erroneously ascribed to nutritional factors. Sinclair (2) cites examples of such errors from nutrition surveys in The Netherlands: hair that was simply unbrushed was diagnosed as "staring" hair of nutritional origin, and insect bites were attributed to ascorbic acid deficiency.

Some members of the staff were working in areas of the country where ways of life were unfamiliar to them and none had had much interviewing experience. For these reasons, data gathered were for the most part records of actual happenings during the survey period, observed at least in part by the field workers themselves, rather than recall histories requiring a high degree of interviewing skill as well as an acquaintance with cultural patterns.

Workers were instructed to explain to families the purpose of the surveys and the sampling procedure used. They were to identify themselves as being from the Ministry of Health, whose function it is to serve the health needs of the people of Peru. They were to discuss this survey as one of a series being carried on in various parts of Peru to study the food and child health situation. The fact that no food or money was to be distributed was to be emphasized. Survey forms were explained to the families so that they would understand what information they would be expected to give, and all were told that if they did not wish to participate, another family would be chosen by lot to substitute for theirs. Perhaps at least partly because people felt flattered at having been chosen, no family refused. Throughout the survey week workers were to show the people what they wrote on the data sheets, to allay any mistrust. They were also instructed to tell families that after analysis of data was complete, workers would return to show the results. In this way an attempt was made to make people feel that they were to be part of the program every step of the way.

Physical Examinations

Physical examinations of all children in the study were presented to mothers as a service and an opportunity for them to have their babies examined very carefully by a well-trained physician. All responded eagerly, even the Indian mothers in the Sierra, who, it was feared, might not have sufficient confidence in the white man's medicine to want their babies examined. Contrary to expectations, the physician's services were constantly in demand while he was in the survey areas, an indication that health services, if offered, would probably find ready acceptance.

Analysis of Data

Food intake and activity data for each child were summarized daily by field workers. After the survey, quantitative food data for infants, as well as the family food data, were calculated in terms of specific nutrients as previously described (1). Since the older children were consuming family food, data for the family food consumption and child studies in many instances augmented each other with resulting increased accuracy for both.

Nutrient intakes of each child were then compared with the Recommended Dietary Allowances of the National Research Council (3), with adjustments for temperature for calories, thiamine, and niacin as suggested by the Institute of Nutrition of Central America and Panama (4) on the basis of FAO recommendations (5). Calorie, protein, calcium, iron, and ascorbic acid allowances were calculated for each child individually on the basis of his own weight, unless his physical findings indicated that his real weight was obviously not ideal. In that event, an average weight for his age was taken from the tables of Pretto (6) and Munoz (7) or for Sierra children from those of Ferrufino and Cecilio (8).

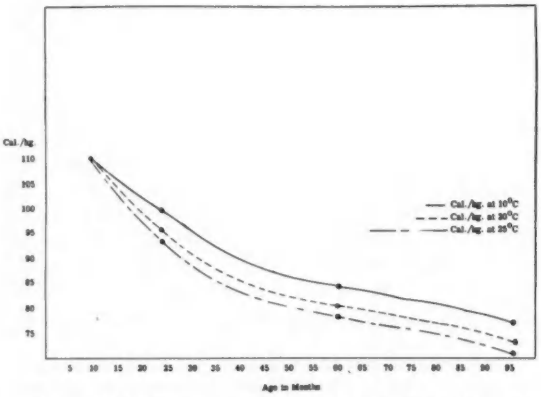

FIG. 1. *Caloric recommendations of the National Research Council by age in months.*

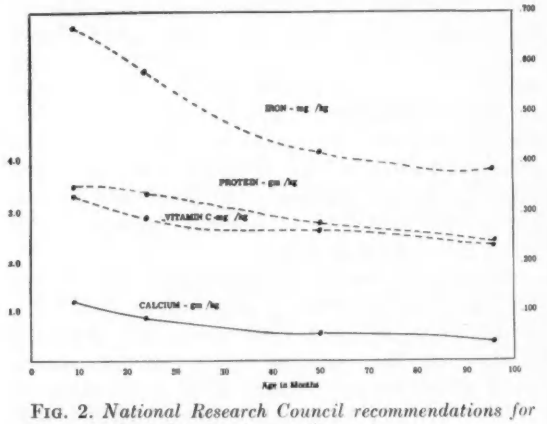

FIG. 2. *National Research Council recommendations for various nutrients by age in months.*

To determine the value of the allowances for each month of age, the amounts given for stated ages were plotted and curves were drawn as shown in Figures 1 and 2 to indicate amounts for intervening ages. Thiamine and niacin were calculated at 0.5 and 5.0 mg. respectively per 1000 calories, and riboflavin was determined by multiplying the total protein allowance for each child by 2.5×10^{-5} gm. (9). A single value of 2000 I.U. vitamin A was used for all children, since the recommended allowance corresponds only roughly to weight. For discussion purposes, any nutrient intake under 70 per cent of the recommended allowance was arbitrarily called a dietary "lack."

Physical measurements of each child, viz. weight, length or height, and circumference of head, thorax, and abdomen, were compared with those of Stuart and Stevenson (10) for Boston children and percentile ratings were noted. Although the Peruvian children were obviously smaller than those measured for these tables, ratings by this scale were nevertheless considered useful in determining the ratio between the various measurements. In the case of children who were so small that all measurements were less than those of the lowest percentile for the corresponding age on the Stuart and Stevenson chart, this fact was indicated by marks of -0 in the tables summarizing physical findings, and comparisons were made with younger age groups, as well as with the data of Pretto (6) and Munoz (7) for coastal and jungle children and of Ferrufino and Cecilio (8) for Sierra children.

Dentition was compared roughly with the chart of Stuart and Stevenson (10).

Non-quantitative and descriptive data were simply tabulated and summarized.

SUMMARY AND CONCLUSIONS

For the purpose of furthering a child health program, surveys were conducted in five Peruvian communities to obtain information regarding dietary intake, feeding practices, and general care of children under three years of age. Methods and procedures are described in this paper; findings will appear in succeeding publications.

On the basis of failures and successes in the reported surveys, the writer offers the following suggestions regarding the conduct of such studies.

Errors of omission occur in dietary surveys if subjects are not observed closely enough. On the other hand, when subjects know that they are being closely watched, their behavior tends to be atypical because of their desire to make a good impression. The more completely the field worker succeeds in winning the confidence of her subjects, the less likely it is for either type of error to occur. Despite all efforts, however, under the usual field work conditions there will be unidentified errors in the data. The investigator must realize this and be circumspect about her data but not hypercritical of unavoidable errors.

If it can be arranged, it might be well to have some tactful member of the field party stay on in a community for a few days after the completion of a survey to gather people's comments about it and thus to uncover some of the previously unnoticed errors.

The writer, primarily responsible for this study, was working in a culture strange to her, a situation not uncommon now that nutrition workers from the United States are being asked to serve in countries foreign to them. To be most effective, such workers should learn the language of the country to which they are being sent and become acquainted with the general culture, the value systems, and specific health problems of the people with whom they are to work before beginning their foreign assignments. Such knowledge can aid immeasureably in establishing rapport with co-workers and survey subjects. Even excellent interpreters cannot completely bridge the gap created by language differences.

Since these surveys were carried on in outlying districts, Peruvian co-workers from the Ministry of Health in Lima experienced some of the same handicaps as the writer. Quechua, the Indian language spoken in the Sierra, and the way of life in both the Sierra and the jungle were unfamiliar to them. At least a little training in the language and culture of the people with whom they were about to work would doubtless have been a help to the field staff from Lima. Field workers in lands other than Peru may similarly need orientation to the way of life of their fellow citizens in the outlying districts.

Unless the investigator and staff are well acquainted with the culture of the people they are studying, it might be well to seek help in the matter of approaching the people to be surveyed. The writer found the suggestions of several anthropologists working in Peru of great value.[6]

The best field workers were found to be those who understood the background of their clients but who were not identified as being of the culture interviewed. Thus, while residents of the community were sometimes excellent informants, they were not always the best field workers because of reluctance on the part of their neighbors to disclose their living practices to their own acquaintances.

Field workers must feel and show respect for their clients.

When clients know that findings will be reported back to them, their interest in the survey increases, mistrust is allayed, and a basis for future work is provided.

[6] The author is particularly indebted to Drs. Allan Holmberg and E. Wellin for their helpful suggestions.

Despite the difficulty of obtaining reliable data regarding attitudes and beliefs, especially with a field staff of inexperienced interviewers, the importance of such data in program planning justifies attempts to procure them.

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The New Cranshaw Melon

The Cranshaw is a comparatively new melon of exceptional quality which is grown almost exclusively in the western melon-producing areas of California and Arizona. With its popularity increasing, melon growers in the West expect to keep markets across the country supplied this summer with somewhat limited but larger shipments than last year. The Cranshaw matures to reach the market beginning in June, with the season extending until October. Peak months are July, August, and September.

Believed to have been developed by crossing the Casaba and the Persian melon, the Cranshaw is a gold and green melon, with the deepening of the yellow color in the smooth rind indicative of ripeness. A very perishable melon, the Cranshaw is usually harvested at maturity and allowed to complete its ripening off the vine. The salmon-colored flesh of the Cranshaw is thick, juicy, and rich in spicy flavor, and its unusual fragrance is tantalizing.

Although as yet no figures are available on the nutritive value of Cranshaws, they undoubtly compare favorably with other melons, such as cantaloupe. Cantaloupes are an excellent source of vitamin A and a good source of ascorbic acid. They also furnish minerals, particularly phosphorus and calcium, and contain a small, yet extremely available amount of iron,

One of the first commercial growers and shippers of Cranshaws was Winifred G. Olson of Turlock, California. Mrs. Olson, whose husband's family has been famous in the western melon industry for several generations, reports this interesting version of her introduction to the Cranshaw. "On our way fishing one Sunday afternoon, we passed a truck loaded with melons. One glance told me that here was something different from any melon I had ever seen, and one taste sold me on the possibilities of these melons. But, the grower told us they were hard to market. No one knew what they were and actually, as you know, consumers are not very venturesome. Few wanted to try them.

"In spite of his experience, we decided to buy his crop to see what we could do with the Cranshaw. The first season we had little success. It was a long haul from his fields to our packing sheds and, with the Cranshaw being the tender melon it is, we had more bruised melons than good ones. Those which we did ship East met with only fair demand, and our experiment ended in a loss.

"However, as a matter of salvage, we saved some seed from the first crop, and the next year planted Cranshaws on our own ranches which are much closer to our packing house. From the time we started growing them, their handling has been a matter of trial and error. Today we understand these delicate melons pretty well, and although the demand is increasing steadily, we are almost able to meet it.

"Growing and handling the Cranshaw is a most delicate proposition. The yield is heavy, but the melons sunburn very easily unless there is a heavy vine growth for protection. Harvesting is difficult, even for experienced field help. The Cranshaw must be harvested when the color is just right—neither too high nor too little. It is a heavy melon and in hauling from field to packing house, each layer of melons must be bedded in excelsior. At the packing house, each melon must be unloaded by hand. Thus, it is easy to see that from field to crate, the labor cost on the Cranshaw is much greater than for any other melon."—*Contributed by Helen E. Goodrich, Director of Consumer Service, Western Growers Association, Los Angeles.*

Nutrition and Care of Young Children in Peru

II. San Nicholas, A Cotton Hacienda, and Carquin, A Fishing Village, in the Coastal Plain[1]

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TWO surveys of the nutrition and care of children under three years of age were conducted in the coastal area of Peru, concurrently with family dietary studies. San Nicolás, a cotton hacienda, has been described, in the report of the results of the family survey conducted there (1). Carquin, a fishing village, was situated on the Pacific Coast about 120 km. north of Lima and not far from San Nicolás. It is typical of the fishing villages of the coastal area of Peru, just as San Nicolás is representative of the small haciendas of this region. Since no great differences were found to exist between the two coastal communities in their food and child care practices, the two surveys are reported here together. Data were gathered for sixteen children in San Nicolás and twenty-two children in Carquin by methods previously described (2).

The population of Carquin at the time of this study numbered 1846 persons, mostly mestizos. They appeared to the writer to be a confident, independent, happy, industrious people, with a hopeful attitude toward life. Approximately two-thirds of the male population over fifteen years of age was engaged in fishing. The remainder carried on a little agriculture in the irrigated fields surrounding the village or worked as mechanics or trades people. About one-third of the women worked outside of the home at least part of the time, mostly as vendors of fish.

Three-fourths of the people of school age and over in Carquin claimed to be able to read, and thirty-four people had completed what would correspond to a high school education. Incidence of literacy was higher in the younger than in the older age groups, an indication that the trend has been toward more and better schooling.

Family size in the Carquin sample averaged 6.6 persons, compared to 5 in San Nicolás.

It was not possible to obtain reliable data on family income, chiefly because incomes from fishing are highly irregular. A rough indication of the living standard may be derived from the finding at the time of this survey that the average food cost per Carquin family was about 20 soles (about $1.25) per day, whereas in San Nicolás the total expenditure was about 15 soles (approximately $1.00).

Carquin

A large number of Carquin families owned their own homes, most of them mud-floored adobe

[1] Received for publication March 19, 1954.

[2] The authors wish to acknowledge the technical assistance of Yolanda Bravo de Rueda, Aurora Castellanos, Aida Dieseldorff, Marina Escobar, and Irma Moscoso, from the Department of Nutrition and the Servicio Sanitario Departamental de Ica, Ministry of Public Health, Lima, Peru.

houses. About 80 per cent of these houses had four or more rooms, generally sparsely furnished. Except for the cooking fires of driftwood, corn cobs, and cotton stalks, homes were not heated and, during the dark winter months when there was no sunshine, must have been cold. For most of the homes there were no toilet facilities other than the open field. Water was obtained from village wells. There were no trees, grass, or flowers in this desert area. Bare, dry earth surrounded the dwellings.

Despite the bleak surroundings, home life appeared to be essentially happy. Families were stable units, as indicated by the low incidence of divorce and *conviviendes* (cohabitants). In fishermen's families, at least, family members cooperated in the work of making a living and keeping up a home. When the father came home from his fishing, usually either early in the morning or midforenoon, he rested while the mother sorted the fish and carried them to the market in Huacho, several kilometers away. There she exchanged them for vegetables, grains, and other food products and perhaps sold some of them for cash. She might take her baby with her or leave it in the care of neighbors or relatives until her return about noon to prepare the family dinner. Sometimes the fishing was done in the late afternoon or even in the forenoon, depending on the season and the type of fish to be caught. The family schedule would then be adjusted accordingly.

DIETARY INTAKE AND FEEDING PRACTICES

Food Intake of Very Young Infants. Of the nine children in the age group from birth to five months, seven were breast-fed, one was bottle-fed, and one was partly bottle- and partly breast-fed. Four of the breast-fed infants did, however, receive *manzanilla* (camomile) tea, or *yerba luisa* (another herb) tea, or coffee with sugar. One child received several teaspoons of orange juice, not for its vitamin content but for its laxative properties. Salad oil was used for the same reason. The bottle-fed baby received sweetened cow's milk, sometimes whole and sometimes diluted with boiled water or *yerba luisa* tea, and the partly bottle-fed child was given a mixture of condensed milk, boiled water, and *Marca T* (unrefined sugar).

When mothers were asked for a history of their children's food intake from birth on, all mentioned having given some sort of sugar solution soon after birth until such time as the breast was given. Some gave plain sweetened water, while others altered its flavor and supposedly supplemented its healthful properties by adding almond oil, anise, cinnamon, molasses, or herbs. A few gave rice water and cow's milk in addition. First breast feedings were given at times ranging from the first to the tenth day, the greatest number occurring on the third day after birth.

Although no infant under six months of age in this study was given "solid" food, 7 of the 29 mothers of older babies mentioned introducing noodle, rice, or dried bean soup, yuca (cassava), sweet potato, mashed potatoes, or cornstarch pudding into the dietary at four or five months. The pudding, made of cornstarch, sugar, and water, appeared to be the only food prepared exclusively for the baby and not for the rest of the family.

Intake from Six to Eleven Months. The most common period for the introduction of first "solid" foods was some time between the sixth and twelfth month, although 3 of 24 mothers who discussed the matter stated that they did not begin giving "solid" foods until babies were a year old. Foods most frequently cited as "firsts" were oatmeal, "angel-hair" noodle soup (very finely cut noodles), and cornstarch pudding. After these first foods, more and more of the family foods were introduced. Reasons stated for the introduction of foods other than milk into the baby's diet were: that the baby was hungry; that he cried when the rest of the family was eating; that milk supply was insufficient; that the food was "good for the stomach," would "strengthen the intestines," or would "correct constipation;" that the food would "help form the baby's stomach," or that the "baby's stomach was now formed" and consequently was considered ready for food; that the baby needed to learn to eat; and that the food entertained the baby.

Of the three infants in this age group, one, a boy of six months, was breast-fed only. Another boy of the same age was breast-fed three to five times daily, bottle-fed two or three times, and in addition was usually given one feeding daily of noodle soup or cornstarch pudding. The third, an eleven-month-old girl, was breast-fed one to five times daily, and in addition received from two to five supplementary feedings, many of them family foods. As indicated in part in Table 1 by the foods listed as having been consumed by an eleven-month-old child, she was given a wide variety of dishes: soups of various kinds, fresh fruits, fried fish, black beans, sweet potatoes, bread, coffee, oatmeal prepared in various ways, and *chicha de mani* (a beverage made of ground peanuts, sugar, and water). From a comparison of this food intake with that of the family, one would conclude that any of the family food was considered appropriate for her.

Food Intake from Twelve to Twenty-Three Months. Daily records of one week's food intake for the sixteen children in their second year of life showed that all received at least some of the family food. Ten received either breast or bottle feedings in addition, while six were completely weaned. Four of these six were given cow's milk as a beverage, one child averaging almost 4 cups daily and the other three from ½ to 1 cup per day. Of the seven breast-fed children, four were given in addition

cow's milk as a beverage in amounts ranging from an average of a tablespoonful to a cupful per day.

The foods that appeared most often in the dietaries of this entire age group were bread, soups of various kinds, rice, sweet potatoes, and coffee with sugar. Three ate an egg during the week, and all ate small amounts of meat or fish, or dried beans. Except for potatoes and sweet potatoes, nearly all vegetables used were in soups, of which a large variety was eaten. Most of the children ate some fruit, usually an orange or a banana. Since apparently none of the foods eaten by the families were generally excluded from the diets of the children in this age group, children developed a large "food vocabulary" early in life (Table 1). Fried, highly-seasoned, and fibrous foods, considered by many North American mothers and health workers as "difficult to digest," were all included.

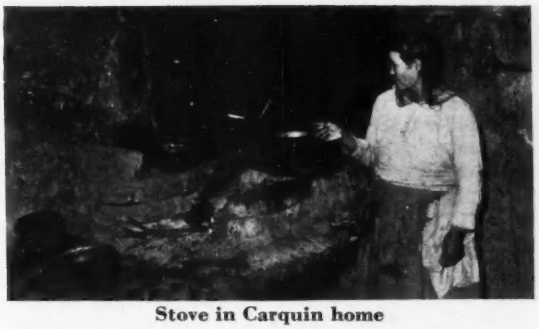
Food Intake of Two- to Three-Year-Olds. While the two- to three-year age group was included in this study in order to insure learning about feeding practices through the weaning stage, no child beyond the age of two years was found to be either breast- or bottle-fed. All ten children in the study in this age bracket were given family food at meal time and some between-meal snacks. As in the case of the twelve- to twenty-three-month age group, bread, rice, soups of various kinds, coffee, and tea were the most frequently used food items (Table 1). One child who was ill received about 2 cups fresh milk and some UNICEF[3] dried skim milk daily; three others were given amounts ranging from 1 to 7 cups during the week; and the remaining six drank no milk as a beverage. Replies to questions regarding foods good or bad for babies seemed to indicate that children in this age group were not considered as having any special food needs and were, in fact, no longer babies.

Nutrient Content of Dietary Intakes

While laboratory analyses of breast milk samples were made (3), no attempt was made to determine the entire nutrient intake of wholly or partially breast-fed children. Nutritive value of supplementary feedings and of the entire diet of post-weaning infants was calculated as previously described (1), and comparisons were made with the recommended allowances of the National Research Council adjusted to the age and weight of the individual child (2) and to a mean annual temperature of 20°C. (68°F). A listing of probable dietary "lacks" (under 70 per cent of the recommended allowance) in terms of specific nutrients is given for each child in Table 2, and a summary of the nutritive value of the diets of completely weaned children is shown in Table 3.

[3] United Nations International Children's Emergency Fund.

In the case of partially breast-fed children, estimates were made of the amount of breast milk needed to augment the calculated nutrient content of the supplementary feedings. Assuming average values for the nutrients of breast milk as given by Macy *et al.* (4), eight of the nine partially breast-fed children would have needed amounts of breast milk ranging from 100 to 1000 cc. daily to meet their caloric allowances. Only one mother appeared not to be lactating sufficiently to produce the amount needed. The ninth child more than met his caloric recommendation with supplementary foods. Calcium and, in most cases, the B vitamins, iron, and protein allowances would not have been met, however, by amounts of breast milk sufficient to meet caloric allowances. (Whether the National Research Council's recommended allowances should be applied to partially breast-fed children is a matter obviously open to question.)



Stove in Carquin home

Calcium was likewise the outstanding dietary lack of the completely weaned children, for all failed to receive 70 per cent of their recommended allowances, and the mean intake for all weaned children from one to three years of age was only 30 per cent of the recommended amount (Table 3). Riboflavin was the only other nutrient of which the mean intake was particularly low—60 per cent of the recommended allowance. The high standard deviations for all nutrients, however, indicate that some intakes varied considerably from the mean. The summary of individual findings shows that there was no nutrient that exceeded 70 per cent of the recommended allowance in every diet; 60 per cent "lacked" iron, vitamin A, and riboflavin; 40 per cent "lacked" protein; 33 per cent, thiamine; 20 per cent, calories; 13 per cent, ascorbic acid; and 7 per cent, niacin.

Both mean intakes and summaries of individual findings for the two-to three-year olds showed that these children fared somewhat worse in regard to calcium, protein, riboflavin, thiamine, and vitamin A than the one-to-two-year children. The more general provision of even small amounts of milk for the younger children partly accounts for this.

TABLE 1

Foods other than breast milk and bottle feedings consumed by three or more of twenty-eight San Nicolás and Carquin children during survey week

FOOD	CHILDREN CONSUMING SPECIFIED FOOD	RANGE IN AGE OF CHILDREN	TOTAL SERVINGS CONSUMED	RANGE OF SERVING SIZE
		months		*gm.*
MILK AND ITS PRODUCTS				
Milk, fresh	9	12–34	69	50–400
Oatmeal with milk	4	11–27	11	200
Starch or flour pudding made with milk	4	14–38	7	15
Butter	12	12–35	34	5–20
EGGS	3	17–34	4	1 egg
MEAT AND FISH				
Bistec (beef steak)	12	14–38	19	20–60
Fish, fried	16	11–34	51	30–60
Fish, fried, seasoned with onions, tomato, and hot pepper	4	15–35	7	30
Anchovies, dried	3	17–35	3	5–15
Ceviche (pickled fish)	3	21–31	6	20
Fish broth	3	11–27	5	200
LEGUMES				
Dried beans, cooked	13	14–38	26	15–90
Porridge of dried bean flour with tomato, onion, and egg	4	18–38	8	100
VEGETABLES				
Potatoes, fried	5	14–34	14	15–100
Potatoes, seasoned with onion and hot pepper	9	15–31	12	30–150
Sweet potato	14	11–38	42	60–300
*Ollucos**	4	15–31	4	10
Corn on the cob	8	14–38	10	25–80
Cabbage, stewed and seasoned with onion, tomato, and garlic	4	18–38	7	
Pumpkin, mashed and seasoned with onion, tomato, and hot pepper	3	21–38	5	100
FRUITS				
Orange	16	11–35	38	20–120
Banana, raw	13	11–35	24	60–400
Peach	5	11–27	8	10–50
Black olives	3	18–38	4	2 olives
Pepino	5	18–35	7	25–80
Apple	3	23–35	5	60–100
CEREAL PRODUCTS				
Bread, French style	24	11–38	274	12–48
Rice, cooked with lard	22	11–38	158	30–200
Soda crackers	7	12–38	49	5–25
Rosquita (doughnut-shaped hard bread)	4	17–20	9	15–30
Toasted ripe corn	3	28–38	4	10–50
Oatmeal with cocoa	6	18–38	21	100–400
SUGARS AND SWEETS				
Azucar rubia ("red" [crude] sugar)	3	18–28	22	7–10
White sugar	3	6–7	5	5–10
Hard candy	6	15–31	8	5–20
FATS				
Margarine	4	17–31	17	5
BEVERAGES				
Tea with sugar	20	11–31	112	100–200
Cocoa, made with water	10	14–35	44	100–200
Coffee with sugar	19	3–39	88	100–200
Coffee	4	17–29	9	100–200
Tea without sugar	4	18–34	9	100–200
Chicha de mani (peanut beverage)	7	11–35	21	100–200
Mate (herb tea)	12	2–21	35	10–220
MIXED DISHES				
Soups (20 kinds)†	29	6–38	78+	100–200
Main dishes				
Fish with carrots and tomatoes	3	17–33	4	40–80
Noodles with piquant tomato sauce	5	15–20	15	60–200
Beef stew with vegetables and noodles	12	11–35	26	200–400
Tamale	4	18–35	4	25–50
Puddings (made without milk):				
Mote de maiz (hominy?, cooked)	7	18–30	55	20–200
Lawa (wheat soup)	7	7–25	23	50–180
Lawa (corn pudding)	8	7–30	27	12–200
Shaqui (barley pudding)	7	7–30	40	17–230

* A small, yellow potato, a native of Peru.

† Soups were made with (or without) beef, lamb, duck, or fish stock; noodles, Cream of Wheat, oatmeal, rice, white potato, or sweet potato; small amounts of various vegetables (sometimes omitted), and condiments; egg occasionally.

None of the children received a vitamin D concentrate. How much of this vitamin was supplied by exposure to tropical sunlight could not be determined. As shown by activity records and summarized in Table 2, four of the twelve infants under one year of age were not exposed to the sun during the survey week and the remaining five for whom this information was available averaged from 0.1 to 2.7 hr. daily. The vitamin D content of breast milk was not determined. Although no organized data regarding the matter were gathered, most mothers were observed to spend much of the day out of doors. All of the children in the study between the ages of one and three years spent some time in the sun, in varying degrees of dress or undress. Little girls usually wore cotton dresses, panties, and shoes and little boys wore cotton shirts, shoes, and perhaps trousers. Not infrequently little boys wore no trousers until they were toilet trained. In cool weather boys and girls wore sweaters and sometimes socks. Usually, however, arms and legs were exposed. No clinical signs of rickets were observed.

Feeding Practices

The week's activity records showed that of the twelve children under one year of age, only two

(ages two and three months) were fed regularly six and five times respectively each day. The remaining ten were fed at irregular hours a varying number of times, ranging from three to six daily for a four-month-old boy to seven to fourteen times for a girl of the same age. Conversation with the mothers indicated that unless circumstances prevented immediate compliance with the infants' demands, they were fed when they appeared to want feeding.

The twenty-six older children were likewise fed at irregular hours from three to ten times per day. Three meals were usually eaten with the family at times that varied by an hour or more from day to day, and between-meal snacks of "left-overs," bread, fruit, a sweet, or *chicha de mani* were given when food was available and demanded by the child.

Weaning Practices. The oldest breast-fed baby in the study was twenty-one months old, and the youngest completely weaned child was twelve months old. When mothers were asked when they usually weaned their babies, they stated ages ranging from one to four years, the age most frequently stated being one and a half years. About half said that they stopped breast feedings because the baby "wanted to quit," two specifying that their babies "wanted to quit" because pregnancy had reoccurred. The remaining mothers used somewhat forceful weaning measures, such as putting quinine, *aji* (hot pepper), garlic, or penicillin on the breasts, or simply letting the baby cry, or sending him to sleep with someone else.

Foods Considered Good and Bad for Babies. Mothers seemed to hold a general concept that up to the age of a year or so a baby's stomach is "not yet completely formed" and that care should be exercised regarding the kind and amount of food other than milk that is given. While cornstarch pudding, oatmeal, and soups (especially "angel-hair" noodle soup) are quite generally considered foods "good for babies" even before the time of complete stomach formation, there was difference of opinion about many foods, such as milk, beans, oranges, and bread. After a child is considered sufficiently developed to eat all family foods, the taboos that apply to family eating naturally hold for him also. A common belief divides foods into categories—"hot," "cold," "fresh," "heavy," or "light"—according to the effect they supposedly have on the body, not according to their physical properties. Thus, pork is generally considered a "cold" food and therefore not to be used during febrile diseases, and sweet potatoes are "heavy." There was, however, no obvious consistency about these categories, and foods considered "hot" by some mothers are thought "cold" by others. It would seem that perhaps individual experiences had helped to formulate the mothers' beliefs, as well as folklore and smatterings of modern health teaching.

Medicines, Herbs, and Other Remedies. Herb teas seemed to be considered universally as good remedies, for adults as well as children. Children of all ages in the study were given *manzanilla* (camomile) and *yerba luisa* (an herb) tea for stomach ache. Other teas mentioned, especially for stomach ache in young infants, were cinnamon, anise and juniper waters, and for diarrhea, rice water. Onion water, plain or with burned sugar added, or coca water were given for coughs, and kerosene was rubbed on the chest. While it was thought from casual conversation with a few mothers that laxatives were much used for the babies, the week's records showed that only five of the children had been given a laxative. Two mothers said that they gave their children a laxative every fifteen days. Laxatives used were milk of magnesia, orange or other fruit juice, salad oil, and various laxative oils and sirups. Two children with *susto* (a mental or emotional disturbance supposedly due to supernatural causes) were prayed over by faith healers.

Other Areas of Child Care

Sleep. The average number of hours of sleep per day for children under one year of age ranged from 11.4 to 18.3, and for the older children from 10.4 to 14.0. All but five of the children slept fewer hours than the minimum number given as "usual" by Mitchell-Nelson (5). Whether this was due to crowded sleeping and living conditions or whether it indicated that children may not need as much sleep as is usually suggested is a matter for conjecture. Ten of the children had their own pallets, hammocks, or beds; the rest shared pallet or bed with one, two, or three other people. No child had his own room. Perhaps at least partly for this reason, bedtime and sleeping schedules were highly irregular.

Bathing. While the appearance of the children indicated that standards for cleanliness were generally low from a North American point of view, activity records showed that twenty of the thirty-eight children did receive from one to seven complete baths during the survey week and that others were washed or given partial baths at times. Surroundings of dust and dirt, as well as scarcity of water and fuel, made cleanliness difficult. A number of mothers believed that a child should not be bathed when he has a cold. All babies were said to have been given a warm water bath soon after birth.

Toilet Training. Of the thirty mothers who discussed toilet training, ten said that they let the children learn by themselves or by watching older siblings. Eight apparently used methods of positive encouragement, such as putting the baby on the basin and teaching him to use certain words, and four said they resorted to spanking or scolding. Thus it would seem that, in most cases, toilet training was not a harsh procedure, or one that was taken too seriously.

TABLE 2

Summary of dietary and physical findings for children of San Nicolás and Carquin

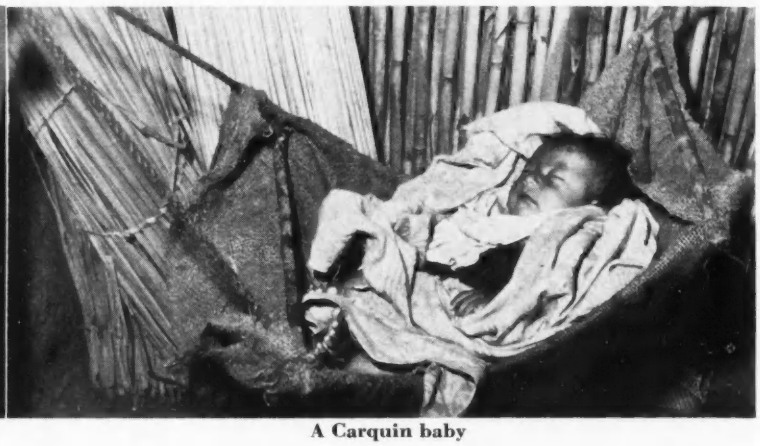
CHILD	SEX	AGE IN MONTHS	FAMILY DIETARY LACKS*	PRENATAL PERIOD		CHILD'S PAST DIET		CHILD'S PRESENT DIET		AVERAGE DAILY EXPOSURE TO SUN	WEIGHT		HEIGHT		DENTITION§	CLINICAL SIGNS POSSIBLY RELATED TO NUTRITIVE DEFICIENCIES	GENERAL PHYSICAL CONDITION
				Probable dietary lacks*	Course of pregnancy†	Type of feeding	Probable lacks*	Type of feeding	Lacks* shown by diet record		Kg.	Percentile‡	Cm.	Percentile‡			
Children under One Year of Age																	
										hr.							
P.S.	M	2	cal., pro., Ca, B_1, ribo., niacin	Ca, pro.	uneventful	breast only	none	breast only	none	0	6.500	97	64.5	100+	not yet erupted	crusty eyelids; xerosis of skin of the back	excellent
H.A.	F	2	Ca, ribo.	Ca, ribo.	uneventful	breast only	none	breast only	none	0	4.500	3–10	57.0	25	not yet erupted	none	good
R.R.	M	2	Ca, ribo.	Ca, ribo.	uneventful	breast only	none	breast only	none	1.1	7.257	90–97	62.0	75	not yet erupted	none	excellent
O.D.	F	3	Ca, ribo.	Ca	uneventful	breast only	none	breast only	none	0.1	6.400	90–97	65.0	100+	not yet erupted	none	excellent
F.S.	M	3	cal., Ca, B_1, C, ribo.	unknown	uneventful	cow's milk + sugar	none	cow's milk + sugar	none	2.6	6.032	50–75	56.5	3	not yet erupted	folliculitis of skin of arms	obese; condition good
M.R.	F	3	Ca	unknown	unknown	breast only	none	breast only	none	2.7	—	—	—	—	not yet erupted	red, scaly fissuring of implantation of ear	data incomplete
J.R.	M	3	Ca, A, B_1, C, ribo.	Ca, A, B_1, C, ribo.	uneventful	breast only	none	breast + condensed milk + sugar	none	0	5.443	25–50	59.5	25	not yet erupted	none	excellent
P.B.	M	4	Ca	none after 5th mo.	excessive nausea to 5th mo.	breast only	none	breast only	none	1.0	6.000	25–50	63.5	75	not yet erupted	none	thin, but condition good
R.C.	M	4	Ca, A, ribo.	Ca	uneventful	breast only	none	breast only	none	—	7.700	75–90	67.0	75–97	not yet erupted	none	excellent
E.M.	M	6	Ca, A, C, ribo.	Ca, A, C, ribo.	uneventful	breast only	none	breast only	none	0	8.845	90–97	71.1	97	not yet erupted	xerosis and folliculitis of skin of thorax	excellent
A.R.	M	6	Ca	Ca	sick for 5 mo., then uneventful	breast only to 1 mo.; breast + condensed milk at 1 mo; soup, puddings, oatmeal at 5 mo.	cal, pro.	breast + condensed milk + other foods	pro., Ca, Fe, A, B_1, ribo., niacin	0.1	7.150	25–50	75.0	100+	not yet erupted	desquamation of skin of face	thin; condition fair to good
M.G.	F	11	Ca, A, ribo.	Ca, ribo.	uneventful	breast; soup, orange juice, pudding at 6 mo.	none	breast + family food	pro., Ca, Fe, A, B_1, ribo.	—	8.210	3–25	70.0	3–25	I, $\frac{2}{4}$	none	small; condition excellent (abnormal dentition)
Children from One to Two Years of Age																	
H.M.	F	12	Ca	Ca	uneventful	breast; soda crackers at 6 mo.; gradually family food	none	family food	pro., Ca, Fe, B_1	0.3	8.740	10–25	—	—	I, $\frac{2}{2}$	data missing	small; condition excellent
M.A.	F	14	Ca, A, ribo.	cal. + all nutrients	abdominal pain throughout	breast; oatmeal, eggs, coffee, milk at 1 yr.	cal. + all nutrients (not enough breast milk or food)	family food + 1 qt. milk (diet atypical)	Fe, C	1.5	7.600	−0	68.5	−3	I, $\frac{1}{2}$	inflamed right ear with dry exudate; hypotrophic papillae of tongue; xerosis of lateral skin of trunk	poor
O.P.	M	14	Ca, A	Ca, pro.	anorexia & general ill feeling throughout	breast; condensed milk & puddings at 5 mo.	pro., Ca, Fe, A, C	family food	Fe, Ca, A	1.4	10.100	25–50	75.5	25	I, $\frac{2}{2}$	none	good
F.R.	M	15	pro., Ca, A, ribo.	Ca, A, ribo.	uneventful	breast to present; soup at 4 mo.	Fe	data incomplete; partly breast fed	unknown	2.7	13.300	97	78.0	50	I, $\frac{1}{1}$; M, $\frac{2}{5}$ erupting	none	excellent
C.R.	F	15	Ca	pro., Ca, B vitamins in late pregnancy	toxemia in last month	breast; soup, pudding, crackers at 5 mo.; then family food	none	breast + family food	Ca, A, ribo.	—	8.391	3–10	74.0	10–25	I, $\frac{1}{1}$	dark spot on bulbar conjunctiva; folliculitis of skin of thorax	good to excellent
M.C.	M	15	Ca, A, B_1, C, ribo.	Ca, A, B_1, C, ribo.	uneventful	breast; soup, puddings, condensed milk at 8 mo.	cal., pro.	breast + family food	cal., pro., Ca, Fe, A. B_1	3.4	7.257	−0	66.0	−0	I, $\frac{1}{1}$; M, $\frac{3}{5}$ erupting	data missing	poor to fair
M.B.	F	17	Ca, A, B_1, ribo.	none	uneventful	breast; soup, puddings at 8 mo.	none	breast + family food	Ca	0.3	8.890	3–25	77.0	25	I, $\frac{2}{2}$ erupting; M, $\frac{0}{5}$	dark spot on bulbar conjunctiva	good to excellent
J.S.	M	17	Ca, ribo.	Ca, ribo.	nausea for 5 mo.; then uneventful	breast; soup, puddings at 6 mo.	none	breast + family food	Ca, Fe, A, B_1, ribo.	3.0	9.979	3–25	74.0	3	I, $\frac{1}{1}$; M, $\frac{3}{5}$ erupting	reddened external angle of eye; red, fissured, crusty line of implantation of ear	small; condition good; signs suggestive of dietary deficienicies
A.G.	F	17	Ca	Ca, A, C	poor appetite throughout	breast and cow's milk; soup at 7 mo.	Fe, A, C	family food	Ca, Fe, A, ribo.	2.8	9.100	3–25	73.5	3	I, $\frac{1}{1}$; M, $\frac{3}{5}$ erupting	dark spots on bulbar conjunctiva; red fissured angles of mouth; xerosis of skin of back	good with possible specific dietary deficiencies
E.E.	F	18	Ca, C, ribo.	Ca	uneventful	breast to present; oatmeal, orange juice, vegetables at 8 mo.	none	family foods; breast rarely	Ca	5.0	10.400	25	76.5	10	I, $\frac{1}{1}$; M, $\frac{3}{5}$ erupting	none	good to excellent

TABLE 2—(*Concluded*)

CHILD	SEX	AGE IN MONTHS	FAMILY DIETARY LACKS*	PRENATAL PERIOD		CHILD'S PAST DIET		CHILD'S PRESENT DIET		AVERAGE DAILY EXPOSURE TO SUN	WEIGHT		HEIGHT		DENTITION §	CLINICAL SIGNS POSSIBLY RELATED TO NUTRITIVE DEFICIENCIES	GENERAL PHYSICAL CONDITION
				Probable dietary lacks*	Course of pregnancy†	Type of feeding	Probable lacks*	Type of feeding	Lacks* shown by diet record		Kg.	Percentile‡	Cm.	Percentile‡			
Children from One to Two Years of Age—(*Concluded*)																	
R.F.	F	18	Ca	none	uneventful	breast to 18 mo.; fruit, vegetables, soup at 9 mo.	none	family food	Ca	4.8	8.600	−3	75.5	3–10	I, ½; M, ½ erupting	none	short, but condition excellent
S.E.	F	20	Ca	Ca, B_1, ribo.	uneventful	breast to present; fruit, soup, cereal at 8 mo.	none	breast + family food	unknown	1.2	9.000	−3	75.5	−3	I, 1; M, 2; C, 2	inflammation of conjunctiva of both eyes; follicullitis of skin of arms	short, but condition excellent
G.S.	M	20	cal., pro., Ca, B_1, ribo., C	Ca, A, B_1, C, ribo.	uneventful	breast to 2 mo; cow's milk to present; soup, cereal at 6 mo.	Fe, A, C	cow's milk + family food	Ca, Fe, A, C	2.6	12.700	75–97	78.5	−3	I, 1; M, 2; C, 2	blefaritis of left eye; crusty eyelids; xerosis of skin of face	obese; condition fair
A.C.	M	21	Ca, ribo.	Ca, ribo.	uneventful	chiefly breast to 1 yr.; then family foods added; soup at 6 mo.	none	breast + family food	Ca, A, B_1 ribo.	2.2	10.795	3–25	78.0	3	I, 1; M, 2; C, 2	cloudy pigmentation of external angle of eye	small; condition excellent
T.R.	M	21	Ca, A, ribo.	none	uneventful	breast to 18 mo.; soups, puddings, milk at 1 yr.	none	family food	cal., pro., Ca, Fe, A, B_1, ribo.	1.2	13.199	75–97	80.6	3–25	I, 1; M, 2; C, 2	pigmentation of Zone A of bulbar conjunctiva; dark spot on conjunctiva; hypertrophied papillae of tongue; dental caries	obese; condition fair to good
G.B.	F	23	Ca	Ca	varicose veins; otherwise uneventful	breast; no further information	unknown	family food	cal., pro., Ca, Fe, B_1, ribo.	1.5	10.866	3–25	88.0	75	I, 1; M, 2; C, 2	none	thin; condition fair to good
Children Two to Three Years of Age																	
C.B.	F	27	Ca, A, ribo.	unknown	uneventful	breast to 24 mo.; oatmeal, milk at 6 mo. family foods at 9 mo.	none	family food	Ca, A, ribo.	0.8	11.249	3–25	78.1	−0	I, 1; M, 1; C, 2	pigmentation of zone of bulbar conjunctiva; atrophied papillae of tongue; xerosis of skin of thorax and arms	fair to good
S.H.	F	28	Ca, A, B_1, C, ribo.	Ca, A, B_1, C, ribo.	uneventful	breast to 24 mo.; soup at 5 mo.; other foods soon	none	family food	Ca, Fe, A, B_1, ribo.	0.4	13.154	50–75	81.0	−0	I, 1; M, 1; C, 2	none	moderately obese; condition good
P.C.	F	29	Ca, A, B_1, C, ribo.	Ca, A, B_1, C, ribo.	uneventful	breast to 18 mo.; soup, puddings at 8 mo.; family foods at 18 mo.	pro., Ca, Fe, A, B_1, C, ribo. since 18 mo.	family food	data incomplete	5.3	14.515	75–97	90.5	50	I, 1; M, 1; C, 2	xerosis of skin of legs	excellent
A.L.	M	30	Ca	Ca	poor appetite	breast to 24 mo. puddings at 5 mo.; vegetables at 8 mo.	pro., Fe	family food	Ca	3.0	10.400	−0	81.0	−0	I, 1; M, 1; C, 2	none	poor
M.P.	F	31	Ca, A, B_1, ribo.	Ca, B_1, ribo.	nausea for 3 mo.; then uneventful	breast to 24 mo.; soup, puddings at 12 mo.	pro., Ca, Fe, A, B_1, ribo. since 24 mo.	family food	cal., pro., Ca, Fe, A, B_1, ribo.	7.3	12.700	25–50	81.5	−0	I, 1; M, 1; C, 2	dark spot on bulbar conjunctiva; dental caries	moderately obese; condition good; carious teeth
M.R.	F	31	Ca, A, B_1, C, ribo.	Ca, B_1, ribo.	unknown	breast to 15 mo.; no further data	cal. + all nutrients	family food	pro., Ca, Fe, A, B_1, C, ribo., niacin	2.6	7.257	−0	—	—	I, 1; M, 1; C, 2	reddened tongue; reddened, fissured, macerate angle of mouth; xerosis of arms and thorax; ill	poor
T.G.	F	33	cal., Ca, A, B_1, C, ribo.	Ca	uneventful	condensed milk	pro., Fe, C	family food	data incomplete	—	11.800	3–25	84.0	−0	I, 1; M, 1; C, 2	inflamed right ear; fissured left angle of mouth	fair
I.R.	F	34	pro., ca, ribo.	unknown	unknown	breast perhaps to 12 mo; cow's milk to 18 mo.; then family food	cal. + all nutrients	family food + some milk, fruit, eggs (diet atypical)	pro., Ca, Fe	—	7.700	−0	81.5	−0	I, 1; M, 1; C, 2	xerosis of skin of face, thorax, and arms; ill	poor
J.P.	M	35	Ca, A, B_1, ribo.	Ca, ribo.	nausea for 4 mo.; then uneventful	breast to 18 mo.; soup, puddings, rice, fish at 11 mo.	none	family food	pro., Ca, ribo.	2.6	13.290	25	90.2	3–10	I, 1; M, 1; C, 2	dark spot on bulbar conjunctiva	small; condition excellent
R.C.¶	F	38	Ca, A, C, ribo.	Ca, ribo.	general ill feelings throughout	breast only to 12 mo.; oatmeal, cow's milk, soup at 12 mo.	Fe, C	family food	Ca, A, ribo.	5.2	11.800	3	89.0	3	I, 1; M, 1; C, 2	none	excellent

* Less than 70 per cent of the recommended allowances.
† Evaluations are mothers' own.
‡ Stuart and Stevenson tables (6).
§ I = incisors, M = molars, C = canines.
¶ Child included in study because of error in reported date of birth.

A mother and baby of Carquin



A Carquin baby

Immunizations. Eight of the children had been immunized, either against smallpox, whooping cough, diphtheria, or bubonic plague. In no case was any opposition to immunization expressed. It appeared that Carquin mothers had not yet become familiar with the newly-established health center in their village, to which they could take their children for immunization.

Persons Responsible for Child Care

Since in planning a child care program it is important to know who is responsible for the care of the children, the activity records included a record of the number of daytime hours supervised by the mother, the father, and by others, and questions were asked to learn who were regarded as authorities on child care and feeding. In San Nicolás, all children under a year were under their mother's care over 90 per cent of the time, but 5 of the older children were supervised by someone else at least one-third of the time. In Carquin, 18 of the 22 children, including the young infants, were cared for by fathers, siblings, other relatives, or neighbors over one-third of the day, usually while the mothers had gone to the market. Indeed, child care appeared to be considered almost a neighborhood responsibility.

Of the 28 mothers who answered the question, "Who in the community can give advice on the care and feeding of children?" 12 answered, "Nobody"; 10 mentioned their mothers, mothers-in-law, or other older women; and 6 named a doctor or nurse. Whether the first 12 felt any need for help or whether they did not consider child care and feeding matters requiring knowledge or skill was not apparent from their answers.

Physical Findings

Anthropometric measurements for each child and percentiles of Stuart and Stevenson for the corresponding age group (6), dentition, clinical signs possibly related to nutritive deficiencies, and an assessment of his physical condition[4] are shown in Table 2. (Head, chest, and abdominal circumferences are not shown in the table since all were essentially in line with other measurements.) Two children in the one- to two-year age group and seven in the two- to three-year Fold group (Table 2) were either too short or too light or both to be compared with their own age groups in the Stuart and Stevenson tables. Three of these children (M. A., I. R., and M. R.) were definitely ill. Three others (ages 4, 6, and 23 months, respectively), were thin, while three (ages 3, 20, and 28 months) were obese. A number of the children were small, judged by Stuart and Stevenson ratings, but otherwise well-proportioned.

In only one case, (M. G., Table 2) was dentition unusually delayed.

Fifteen of the 36 children examined showed no clinical signs suggestive of nutritional deficiency; 12 had mild xerosis or folliculities of the skin sometimes indicative of vitamin A deficiency but more often due to wind and weather or local irritation (7); 9 had mild eye symptoms, such as reddened angles of the eye, pigmentation of Zone A of the conjunctiva; inflammation of the conjunctiva or dark spots, all sometimes associated with riboflavin or vitamin A lack (7, 8). Four showed a fissuring at the line of implantation of the ear or at the angles of the mouth, also sometimes ascribed to a deficiency of riboflavin (7); 4 had tongue symptoms sometimes associated with B-complex deficiencies (7); 2 had crusty eyelids; and 1 had a mild blepharitis. The signs were not severe in any case and were not interpreted as indicative of gross deficiency. Therapeutic tests and laboratory examinations were not made.

On the basis of all physical measurements and findings, fifteen children were rated in "excellent" physical condition, three "good to excellent," eight

[4] The authors are indebted to Dr. S. Dooley for evaluations of physical findings.

TABLE 3

*Summary of dietary findings for weaned children in San Nicolás and Carquin surveys**

CALCULATION	AVERAGE AGE	AVERAGE WEIGHT	CALORIES	PROTEIN		CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID
				Animal	Total							
Eight One- to Two-Year-Old Children												
	months	*kg.*		*gm.*	*gm.*	*mg.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*
Intake	17.9	9.93	923	14.0	27.8	334	4.1	1847	0.422	0.700	7.47	36.9
Standard deviation	±3.5	±1.03	±244	±4.2	±7.3	±150	±1.6	±1249	±0.156	±0.279	±2.56	±20.5
National Research Council allowances			1003		34.8	914	6.2	2000	0.502	0.870	5.02	29.8
Mean intake as per cent of allowances			90		80	36	66	92	84	80	149	124
Per cent of subjects "lacking" each nutrient			25		38	100	75	50	25	38	0	13
Seven Children in Two- to Three-Year Age Group												
Intake	31.4	12.18	986	10.6	26.0	203	6.1	1732	0.445	0.447	6.44	64.7
Standard deviation	±3.9	±1.10	±370	±5.8	±8.2	±75	±2.8	±1937	±0.270	±0.305	±2.36	±53.1
National Research Council allowances			1096		39.0	877	6.5	2000	0.548	0.975	5.48	32.9
Mean intake as per cent of allowances			90		67	23	94	87	81	46	117	197
Per cent of subjects "lacking" each nutrient			14		43	100	43	71	43	86	14	14
Average of Both Groups												
Intake	24.2	11.0	952	12.4	27.0	273	5.1	1794	0.433	0.582	6.99	49.9
Standard deviation	±7.9	±1.47	±299	±5.1	±7.4	±135	±2.3	±1546	±0.208	±0.325	±2.44	±40.3
National Research Council allowances			1045		37.4	913	6.4	2000	0.523	0.935	5.23	31.9
Mean intake as per cent of allowances			91		72	30	80	90	83	62	134	156
Per cent of subjects "lacking" each nutrient			20		40	100	60	60	33	60	7	13

* Incomplete and obviously atypical diets omitted from summary.

"good," four "fair to good," two "fair," one "poor to fair," and four "poor."

Family Dietaries

"Lacks" in the dietaries of the families of children in this study are summarized in Table 2.[5] As in the children's diets, calcium was the outstanding "lack," and a large proportion of families also "lacked" riboflavin. From about one-third to one-half "lacked" vitamin A, thiamine, and ascorbic acid, only four families "lacked" calories and protein, only one "lacked" niacin, and none were low in iron.

[5] Carquin family dietary information was obtained by personal communication from Dr. Hilda White and the dietary staff of the Department of Nutrition, Ministry of Health, Lima, Peru. For San Nicolás family diets, see reference 1.

Prenatal Period

Information, admittedly inadequate, regarding the prenatal period of each child's life is briefly summarized in Table 2. Dietary "lacks" in most cases paralleled those of the family.

Interrelationships of Findings

Dietary, general care, and physical findings were summarized in order to permit an overview of each child's record and to facilitate obvious associations. Summaries of dietary and physical findings are shown in Tables 2 and 3. The following observations are made without necessarily meaning to imply cause and effect relationships.

(a) All but one of the children under one year of age (Table 2) were rated in "excellent" or "good" physical condition. Percentile-ratings in height and weight were also higher for this group than for the

older groups. All but one (F. S.) of these children were wholly or partly breast-fed. On the other hand, 10 of the 11 children with "poor," "fair," or "fair to good" physical ratings were over a year old; 9 were eating family food altogether, and 2 were partly breast-fed and partly on family fare. These findings are consistent with those reported by Brock and Autret (9) and by others emphasizing the critical nature of the post-weaning period, particularly in tropical countries.

(b) Of the four children rated "poor" physically (Table 2), three had been until recently on poor diets and had received poor general care. For the fourth (A. L., Table 2), no such simple "explanation" could be given.

(c) All children on family fare had dietary "lacks," although in four cases the only "lack" was calcium.

(d) Comparison of the "lacks" in the children's diets with those of their families showed that "lacks" in the two rarely agreed entirely either in kind or number. In 14 instances, the child's diet showed more "lacks" than that of his family, in 5 cases the family's showed more, and in 5 cases, the two agreed in number.

(e) There was no clear-cut relationship between the presence or absence of clinical signs possibly related to nutritive deficiencies and dietary adequacy. Of the 15 children with no such signs, 6 had no dietary "lacks" and 3 "lacked" calcium only, while 3 had a large number of dietary "lacks"; for 1, dietary information was incomplete and the other 2 lacked both calcium and iron (in addition, one lacked vitamin A and the other riboflavin). In a comparison of specific signs with the dietary lack commonly associated with those signs (7, 8), it was found that 11 cases with specific signs showed the corresponding dietary "lack" and 7 did not. Conversely, however, cases with specific dietary "lacks" by no means always showed deficiency signs, even when the intake of a nutrient was considerably lower than 70 per cent of the recommended allowance.

(f) Of the 12 children with folliculitis or xerosis of the skin, 6 had and 5 had not been bathed during the week (for 1, no information on bathing was given). Six of the 10 unbathed children, on the other hand, had either folliculitis or xerosis and 4 had no skin signs. One unbathed child had a desquamation of the skin.

(g) The limited data at hand show no obvious relationships between the physical condition of the children and probable prenatal dietary "lacks," the course of pregnancy, exposure to sunlight, number of baths, and amount of sleep.

DISCUSSION

Since observational data were gathered for only one week and from a small number of subjects and since interview data were admittedly meager, findings must necessarily be considered preliminary. Until further studies are made, however, they may well serve as a tentative guide for program planning.

A matter worthy of note and emulation was the generally calm, relaxed attitude of the mothers in caring for their children. Most appeared to have no feelings of compulsion about feeding or sleeping schedules, about the introduction of "solid" foods, weaning, or toilet training. The usual attitude seemed to be not one of carelessness but one that said, "When the baby is ready, he will learn easily." Since this attitude, according to child care experts (10–13) is commendable, it is to be hoped that health workers will recognize it as such and not create problems by attempting to teach inflexible routines.

Interestingly, there were no "feeding problems." The term was, in fact, unknown even to the field staff. To what extent this happy situation was due to the mother's relaxed attitude and to the practices resulting from it, to the relative scarcity of food and the resulting high regard for it, to the non-moral attitude toward food or to other factors cannot be stated.

Dietary as well as physical findings indicated that the post-weaning infant or the young child dependent largely on family fare had particular nutritional needs. Because he could eat little or none of some adult foods, such as fish, his diet was often poorer in some nutrients than that of his family. The suggestion that an indigenous low-cost baby food be made and marketed to replace the "angel-hair" noodles and starch puddings now so widely used in infant feeding seems worth further investigation. Education regarding the young child's food needs is also indicated. Perhaps families could be taught, for example, that fish, eggs, cheese, and so on are somewhat alike in food value and that the baby should more often be given the few available eggs and cheese, since he cannot eat the fish.

These and other educational efforts need to be directed not only to mothers but to the entire family and neighborhood since, as indicated by these data, many individuals in addition to the mother share responsibility for the child's care. In all attempts to effect change, respect should be shown for peoples' current attitudes and practices.

The calcium, riboflavin and other B-vitamins, vitamin A, ascorbic acid, and protein content of the post-weaning infant's diet might be improved by the methods suggested in the report of the family dietary study to which this study was an accompaniment (1).

That physical status of individual children did not in all instances parallel the dietary intake was rather to have been expected in view of many factors, viz., biologic variation, adaptability, interrelationship of nutrients, lack of specificity of physical signs, the smallness of the sample and the

shortness of the sampling period, the fact that health depends on a complexity of causes of which diet is but one, the inability to measure degrees of health, and perhaps others. The apparent inconsistency of such findings does not mean, however, that the diets of all who had no obvious physical signs of deficiency were satisfactory, but only, as Darby (13) points out, that "the advantage to be gained by dietary improvement will be in that region which cannot be assessed by most of the present-day clinical methods."

SUMMARY

A study was made of the nutrition and general care of thirty-eight children under three years of age living in the coastal area of Peru. All but one of the children under one year of age were entirely or partly breast-fed. "Solid" foods were usually introduced some time between the sixth and the twelfth month and weaning occurred during the second year of life. Dietary records of the fifteen completely weaned children showed that all received less than 70 per cent of the National Research Council's recommended allowance of calcium and that from 40 to 60 per cent of the children failed to reach this level of the recommended intakes of riboflavin, iron, vitamin A, and protein. Clinical signs sometimes associated with nutritive deficiencies were observed in twenty-three of the thirty-eight children. Anthropometric measurements showed children over one year of age to be small compared to the percentile ratings of Stuart and Stevenson (6).

In the area of child care, the calm, relaxed attitude of the mothers seemed particularly worthy of comment and emulation.

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Individualizing the Hospitalized Child's Food Care

At the Illinois Children's Hospital-School, Chicago, no child is put on a diet without careful preparation. The doctor usually talks to him first, telling him as much as is necessary to enlist his cooperation. The dietitian then has a private conference with the child and lets him help plan his own diet, insofar as this is possible, within the caloric restriction. He is able to make certain choices of food and indicate their distribution throughout the day's total intake. For example, Tim may prefer buttermilk to skim milk. Nancy may be able to drink only whole milk but is willing to forego something else. Allen would rather do without a slice of bread at one meal so that he can have a sandwich at the next. Jane may want a bedtime snack like the other children. Calories are then so distributed that this is possible.

While the dietary service has the responsibility of providing adequate, palatable meals in a pleasant atmosphere, other staff members also have a part, direct or indirect, in the provision of adequate meal service under conditions necessary to permit realization of the objectives set forth. The occupational therapist must see that chair and table heights are suited to the individual child. She must manufacture special eating and drinking utensils for those who have special problems because of their handicaps.

The occupational therapist also provides instruction and training in self-feeding. This therapy is begun in treatment periods. When the child is ready to feed himself, the occupational therapist gives supervision in the dining room. The house parent has an interest in the child's food habits. She knows his likes and dislikes. She is concerned with the child's behavior in the dining room. The housekeeper makes the dining room as attractive as possible with colorful draperies and pictures. She knows that a pleasant atmosphere makes any meal taste better. The doctor and nurse are concerned with the child's food habits from the standpoint of general health.—*Genevieve Anthony, writing in* Hospital Progress, *April, 1953.*

A Bookshelf on Nutrition and the Preschool Child

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WOULD you like to browse among publications on nutrition and the preschool child? A selection of printed material on child feeding has been compiled for your information and pleasure, to be housed on a "child nutrition bookshelf."

An analysis of the process of child feeding suggests many questions. What foods should be offered? How should they be prepared? How does growth affect eating behavior? Is there a common time for feeding problems to begin? To answer these and other questions, the professional worker must have a knowledge of nutritional requirements and meal planning. She must know something about children—how they grow, their ideas about food, how they develop these attitudes. She must be able to help parents with everyday eating problems. This "bookshelf" was developed as a source of information for you, a professional worker. The selections do not necessarily include everything available but they can serve as an introduction. And, by utilizing the bibliographies and suggested readings cited in the references, you can go as far as you wish in your perusal of the subject.

The publications have been grouped to represent the following areas in the field of child nutrition: (a) food requirements and meal planning, (b) guiding the child in learning to eat, (c) meals away from home, and (d) suggestions for parents.

FOOD REQUIREMENTS AND MEAL PLANNING

Suitable food is the "what" of child nutrition. It is the older, more established aspect of child feeding. As emphasis has swung towards the need for understanding eating behavior and attitudes toward food, statements such as "Feed him anything" and "He will eat when he is hungry" have been heard. Comments such as these make one recognize the danger in overemphasizing either the foods offered or the methods employed to help the child learn to eat. Feeding children so that they will be well fed and happy requires a philosophy of feeding which blends a knowledge of dietary needs with a knowledge of the many things which condition the child's response to food. We must offer proper food, but at the same time realize the child will not always be consistent in his selection.

The table of Recommended Dietary Allowances as proposed by the Food and Nutrition Board of the National Research Council is the guide most generally used as the goal in planning meals which meet dietary requirements. The recommendations cover all age groups, including adults and the special conditions of pregnancy and lactation. The allowances established for children are broken down into age groups, i.e., figures are given for infants, for the child one to three years of age, the four- to six-year-old, and on up through adolescence. These allowances were originally published in 1943. They were revised in 1945, again in 1948, and the 1953 revision has just recently been released (1). The changes in the new revision are discussed by Robert Shank in "Revisions of the Recommended Dietary Allowances" (2). The text which accompanied the formal publication of the table of recommended allowances in the past has included a complete discussion of the history and purpose of the recommendations. Each nutrient for which an allowance was made was considered separately, and the studies on which an allowance was based were cited. The text has been a valuable reference and a necessary adjunct for a thorough understanding of the table. The table, as it pertains to children, is included here as Table 1.

Infant feeding is discussed in two books on the bookshelf, *Infant Nutrition* by the late P. C. Jeans and W. M. Marriott (3) and *Essentials of Infant Feeding* by Herman F. Meyer (4). *Infant Nutrition* is frequently used as a text in classes for students of medicine and nutrition. Nutritional requirements, metabolism of the various food elements, and techniques of breast and artificial feeding are presented. A section of the book is devoted to a consideration of gastrointestinal disturbances which may

TABLE 1

*Recommended Dietary Allowances for children from infancy through the ninth year**

AGE	WEIGHT	HEIGHT	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID	VITAMIN D
	kg.(lb.)	*cm.(in.)*		*gm.*	*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*	*I.U.*
Infants†												
1 to 3 months	6 (13)	60 (24)	kg. × 120	kg. × 3.5	0.6	6	1500	0.4	0.5	4	30	400
4 to 9 months	9 (20)	70 (28)	kg. × 110	kg. × 3.5	0.8	6	1500	0.5	0.8	5	30	400
10 months to 1 year	10 (22)	75 (30)	kg. × 100	kg. × 3.5	1.0	6	1500	0.5	0.9	5	30	400
1 to 3 years	12 (27)	87 (34)	1200	40	1.0	7	2000	0.6	1.0	6	35	400
4 to 6 years	18 (40)	109 (43)	1600	50	1.0	8	2500	0.8	1.2	8	50	400
7 to 9 years	27 (59)	129 (51)	2000	60	1.0	10	3500	1.0	1.5	10	60	400

* Reprinted from Recommended Dietary Allowances, Revised 1953 (2).

† The recommendations for infants pertain to nutrients derived primarily from cow's milk. There should be no question that human milk is a desirable source of nutrients for infants, although intakes may not provide the recommended levels of certain nutrients (see discussion in text).

need special dietary treatment. *Essentials of Infant Feeding* is a useful concise reference. "Practical principles of chemistry and physiology" have been summarized and applied "to the art and science of infant nutrition." Its bibliography, listing 154 references, is an important contribution. Another outstanding section of the book is the classification and description of the literally hundreds of proprietary infant foods. The section is well organized and complete.

You will find two bulletins distributed through the U. S. Children's Bureau of particular interest and help in planning meals for children. *The Road to Good Nutrition* (5) was written by Lydia J. Roberts in collaboration with members of the Children's Bureau staff. This booklet considers the child's nutritional needs at different stages of growth and methods for meeting these needs. Emphasis is placed on describing the healthy, well nourished child. *Food for Young Children in Group Care* (6) was written by Miriam Lowenberg. This publication contains a wealth of information—comments on good eating habits; meeting the child's food requirements; buying, storing, preparing, and serving food; and suggested menus. Dr. Lowenberg is well qualified by her long experience in nursery school work, as Chief Nutritionist, Kaiser Child Service Centers in Portland, Oregon, and as Nutrition Supervisor of the Rochester Child Health Project, Rochester, Minnesota, to write this booklet. She is also the author of a book for parents, *Your Child's Food* (7), which you will find helpful. It will be discussed more fully later.

The following texts include sections on the food and nutrition needs of children: Sherman's *Chemistry of Food and Nutrition* (8), *Handbook of Nutrition, A Symposium* published for the Council on Foods and Nutrition of the American Medical Association (9), and *Nutrition and Diet in Health and Disease* (10), now in its sixth edition, by J. S. McLester and W. J. Darby.

GUIDING THE CHILD IN LEARNING TO EAT

The child can't be forced, but he can be guided to accept eating as a pleasurable experience devoid of exaggerated emotional reactions. When we talk of guiding the child in learning to eat, we imply that he does possess some capacity for food selection. Our problem is to recognize this capacity. His orderly pattern of growth is one indication of the way nature has endowed him with the potential for caring for his own needs. For the first few months of life, he doesn't do much but eat and sleep; soon he learns to sit, stand, and finally walk. In eating, he first takes only liquids which he swallows easily. As he grows, he is able to manage soft solid foods. Then as he gains more control, he can feed himself with his fingers. Spoon feeding requires a higher level of muscular coordination and is the last step learned. Thus we see that the way the child eats depends partly on the way he grows. This is what we mean when we say that a knowledge of growth and development is essential in a plan of child feeding.

Growth and Development of Children by E. H. Watson and G. H. Lowrey (11) is a factual review of normal growth and development. The data were first compiled in manual form for purposes of teaching undergraduate students. The manual was gradually enlarged and used as a reference by graduate students and by pediatric residents in preparation for Board examinations. The authors include information on the following topics: fetal growth and development, normal physical measurements, behavioral development, organ development, energy metabolism, and nutrition in normal growth.

A child's mental and social growth also affects his feeding behavior. Gesell and associates at the Yale Clinic of Child Development have studied the characteristics of children's behavior over many years. They have published at least two books which will help in understanding children and their acceptance of food. *The First Five Years of Life: A*

Guide to the Study of the Preschool Child (12) is a comprehensive summary of behavioral development during the first five years. Motor, adaptive, language, and personal-social behavior are treated in detail. *Infant and Child in the Culture of Today* (13) is concerned with characteristics of mental growth in the child's preschool years and how they are brought into harmony with cultural forces. A "behavior profile" and a "behavior day" summarize typical traits and growth trends of each age. A philosophy of guidance, based on what is known about children, is also presented.

Facts and principles usually are more meaningful when they are illustrated by actual situations. *Growth and Development of the Young Child* by Winifred Rand, Mary Sweeny, and E. Lee Vincent (14) is a book in which the child's growth is considered in relation to conditions of family life. It is a practical guide.

THE CHILD'S APPETITE

These references will supply data on general development, but you still may want to know more about a child's appetite. It is possible to distinguish trends in a child's behavior towards food. Smearing and fingering food, positive ideas about how the meals are served, food jags, and strong preferences are typical at certain ages. Such ideas are apt to be trying, and it is easy for them to become issues where the child's will is pitted against the parents'. Frances Ilg describes the characteristic patterns in eating behavior and discusses the importance of respecting them in "The Child's Idea of What and How to Eat" (15).

One common source of feeding difficulty in early childhood is failure to respect individual fluctuations and differences in appetite. That these differences do exist is substantiated by research findings. Dr. Clara Davis' experiments on the feeding behavior of infants when they are offered a variety of foods demonstrated that appetite can function as an indicator of nutritional needs under certain conditions. However, the children did not follow an orthodox plan of eating. Each child's pattern of intake was different, and even that individual pattern varied. The details of the experiments and the descriptions of what and how the children ate are outlined in Dr. Davis' original report, "Self Selection of Diet by Newly Weaned Infants" (16). She also describes them in "Feeding after the First Year" (17). These experiments have become classics in the field.

PSYCHOLOGIC SIGNIFICANCE OF FOOD

Food may have meaning to an individual far beyond its biologic significance. To understand the process of child feeding, we must know something about how such psychologic meaning is acquired. From the psychiatrist, we have learned that through the infant's early eating experiences, he gains an impression of the people and the world about him. His reactions may condition not only his food intake but his later social and emotional development. These thoughts are discussed by Julius Richmond and George H. Pollock in "Psychologic Aspects of Infant Feeding" (18).

If food has psychologic importance to a child, the feeding situation can be used to satisfy some of his emotional needs. This may be especially true in the hospital setting or in the psychiatric treatment of disturbed children. "Feeding Children to Meet Their Emotional Needs" by R. D. Rabinovitch and Joseph Fischhoff (19) is a very able paper on the psychologic implications of eating. In addition to discussing the therapeutic side of feeding, the authors refer to research in the emotional aspects of feeding, cultural pressures, and correlation between eating habits and home relationships.

Food may take on meaning to the child because of the attitudes held by his parents or other adults responsible for his care. "Factors Influencing Food Acceptance" by Ercel S. Eppright (20) is an excellent summary of the many factors which affect food acceptance and will give an over-all picture of the influences involved. The question "Why do people eat what they eat?" is a complicated and difficult one to approach from a research point of view because of the many variables present. However, the emergency of the past war, with the necessity of rationing food, stimulated work in the area of food habits. A study was done in 1942 as a part of the activities of the Committee on Food Habits of the National Research Council. The methods and results of this study are published in *The Problem of Changing Food Habits* (21). This bulletin is worthy of your attention.

Studies of established cases of feeding disturbances have indicated the multiplicity of factors involved. They may have a relatively simple or an extremely complicated origin. One reason we have turned to a study of growth and its effects on appetite, characteristics of eating behavior, and the meaning of food is because we have learned that a failure to recognize their import is a common cause of difficulties in eating. These studies have also shown that feeding problems frequently begin during the first two years of life. They can sometimes be traced to schedules which were too rigid, forcing of solid foods, failure to appreciate differences in appetite, weaning, or other causes. Prophylactic measures designed to help the mother understand the child's reaction to these situations can reduce the incidence of feeding problems. You will find *Avoiding Behavior Problems* by Dr. Benjamin Spock (22) a help for its practical suggestions. *Eating Patterns of Children—A Guide for Doctors and Nurses* by the National Association for Mental Health (23) is another pamphlet where prevention of feeding problems is emphasized. It

was written to help the professional worker guide parents in establishing satisfactory eating habits in their children. The topics covered include: how good eating habits develop, why mothers force children to eat, what parents must understand, and scientific research in eating habits. There is a companion bulletin for parents.

MEALS AWAY FROM HOME

Many children today are served meals out of the home—in nursery schools, day nurseries, or similar day-care centers. The children may receive one, two, or three meals a day. If they are given one or two meals, they should be planned with the entire day's food in mind. Suggestions are included in *How to Feed Children in Nursery Schools* by Mary E. Sweeny and Marian E. Breckenridge (24). Recipes calculated to serve thirty or thirty-five children are provided. *Food for Young Children in Group Care* (6), which has been described, was planned to help those responsible for the feeding of children in groups.

A hospital experience can be frightening to a child. Some things can be done to make it less traumatic, however. The food service offers one avenue of approach. This must be a cooperative project with all hospital departments participating and lending their interest and support. Several articles devoted to this problem have appeared in professional journals. One, "The Nurse's Approach to the Feeding of Children," by Isabelle Jordan (25) is, as the title suggests, written from the viewpoint of a nurse. Mildred Wallace, also a nurse, has contributed "Feeding the Hospitalized Child" (26). "The Child and His Food" (27) and "Group Feeding for Hospitalized Children" (28) constitute a report of a project of the Diet Therapy Section of The American Dietetic Association titled, "Evaluation of Child Feeding Practices in the Hospital." The psychiatrist's viewpoint is given by Rabinovitch and Fischhoff in the article already mentioned (19). Dr. Clara Davis, a pediatrician, applied the observations of her self-selection study to the hospital setting. Her plan is published under the title, "A Practical Application of Some Lessons of the Self-Selection of Diet Study to the Feeding of Children in Hospitals" (29).

SUGGESTIONS FOR PARENTS

If reading material is to be used by parents, it should discuss topics on which they need help. What topics do parents feel would be useful? Results of a survey (30) indicate they want dietary information to include: (a) foods from which the child's daily diet may be chosen, (b) suggestions on meal planning for the family, including the children, and (c) discussions on eating behavior—reasons for variation in appetite, causes of food refusal, how experiences other than eating may affect eating behavior, and methods for handling problems in eating. You can fulfill parents' demands by recommending publications from this section of the bookshelf, which houses books and leaflet material written for them on general child care as well as those whose main emphasis is on food or feeding problems. Most of the general-care publications have sections on feeding. A few do not but are, nevertheless, included on the bookshelf because they give the parent a general understanding of his child.

Your Child's Food by Miriam E. Lowenberg (7) was prepared in response to the requests of mothers and nursery school workers for adequate and satisfactory menus for young children. The beginning chapters set the stage for a successful plan of feeding by orienting the mother to the concept that her child will eat if he is given a calm atmosphere in which to eat. Planning menus for the family, food for special occasions, food preparation, meal service, menus, and recipes are the topics of the succeeding chapters.

Another book similar in purpose is *All about Feeding Children* by Milton J. Senn and Phyllis Kraft Newill (31). The book is planned to help parents know: (a) what foods are suitable for children; (b) how to buy, store, and cook food correctly; and (c) how to offer food. Problems pertinent to feeding during various ages from infancy to adolescence are presented first. The remaining chapters are concerned with specific food groups—their place in the child's diet and their preparation. Parents could use this publication as a source book. It is not necessary to read it in its entirety for understanding of a definite problem. For example, if one were interested in the one-and-a-half-year-old child, he could refer to the chapter on feeding during the first two years and find a complete resumé of suggestions for feeding the child of this age.

The title of the pamphlet, *Eating Problems of Children—A Guide for Parents* by the National Association for Mental Health (35) may suggest that here is a pamphlet outlining kinds of feeding disturbances and what to do about them. It does discuss the child who is an "eating problem," but the contents are not confined to maladjustments in eating behavior. Hints on letting the child enjoy his food and giving the baby a good start occupy an important place.

Enough nutrition education has penetrated the consciousness of the public to make parents (at least many of them) aware of the interrelationship of food, growth, and health. It would be such a simple matter if the child always accepted the food which is offered, but he doesn't. Some parents can handle food refusal calmly, others become anxious, and the pattern is cut for the child to become a child "who won't eat." Once a feeding problem has become established, correcting it requires much patience and understanding, not only of the child but

of the parents' feelings, too. *Feeding Our Old Fashioned Children* by C. A. Aldrich and Mary M. Aldrich (35) can be recommended to parents as a book whose authors understand how frustrating food refusal can be, but who respect the parents' desire and capability of doing something about it. The book will be especially useful to the parents of a child with an existing eating problem. However, it is also recommended reading for the parent who wants to know more generally about the child's mechanism for getting food.

An earlier book of the Aldriches, *Babies Are Human Beings* (36), interprets for parents the physical and mental development of the child in non-technical language. The baby is viewed as a person with his own way of eating, of sleeping, of growing. It is enjoyable as well as informative.

Many parents, perhaps a majority, consult publications on child care. The name of Dr. Benjamin Spock has become familiar to mothers and fathers the country over because of his book, *The Common Sense Book of Baby and Child Care* (37). It has been published in a Pocket Book edition, too (38). Dr. Spock applies modern theories in a warm, friendly way. He respects parents' questions, gives constructive help, and encourages parents to recognize that they, too, have ideas on the child's care.

Another author whose writings convey the impression that he thoroughly understands and is in sympathy with parents and their questions is Dr. James L. Hymes. One of his pamphlets, *Enjoy Your Child—Ages 1, 2, and 3* (39), is an informative discussion of the needs and growth of young children. He tells parents what to expect and how to cope with the child's changing needs.

GOVERNMENT PUBLICATIONS

There are also several excellent government publications available for parents' use. The Children's Bureau folder, *Foods Your Children Need* (32), which tells the kinds of food and in what amounts children need to grow properly, is exceptionally well written. It is difficult to present a topic of this kind without the rigidity and dogmatism which has previously prevailed in this area of child feeding. Part of the success of this little booklet lies in its simple conversational tone. It is written in terms which even a person with limited schooling can easily understand. Clever line drawings add to its appeal. The Bureau of Human Nutrition and Home Economics has published *Food for the Family with Young Children* (33), which is based on the food plan of a moderate-income family of four. It presents a food budget plan, daily menus, and food supplies for one week.

The theme of the 1950 Midcentury White House Conference on Children and Youth was: *How can we put to good use present knowledge about the ways human beings acquire the personal qualities essential to individual happiness and responsible citizenship?* Dr. Martha Eliot, Chief, Children's Bureau, quotes this question in her foreword to an official publication of the Children's Bureau, *A Healthy Personality for Your Child* written by Dr. Hymes (40). This pamphlet considers the parents' part in helping their children achieve a healthy personality. Dr. Hymes' skill in writing—as if he were talking *with* parents rather than *at* them—is well demonstrated in this bulletin. The pamphlet is illustrated.

Other Children's Bureau publications which parents have found useful—judging from the numerous printings and revisions—are *Infant Care* (41) and *Your Child from One to Six* (42). *Infant Care* was revised for the ninth time in 1951. It provides information on feeding, clothing, bathing, play needs, illnesses, and other subjects, and is planned to help parents with the questions they usually ask—especially parents of first babies. Pediatricians, nurses, nutritionists, psychologists, psychiatrists, and parent educators have contributed the benefit of their experience by reviewing the new edition. *Your Child from One to Six* is a sequel to *Infant Care* and is planned to provide a reference for parents to which they can turn for information when their baby has passed infancy. It, too, gives information on feeding, clothing, special problems—thumb sucking, bowel and bladder control, nail biting, stuttering, prevention of accidents and disease, communicable diseases, and others. Both of these publications are illustrated with photographs.

Breast Feeding (43), *Your Well Baby* (44), and *Into Childhood—Help Your Baby Grow Up* (45) are three small Children's Bureau leaflets aimed to help parents with particular problems. *Breast Feeding* discusses advantages of breast feeding, things the mother can do before the baby is born to prepare herself for breast feeding, how to breast feed, and foods the baby needs besides milk. *Your Well Baby* emphasizes the importance of regular medical check-ups, foods, schedules to suit the baby, what he is trying to say when he cries, and hints on keeping him happy. *Into Childhood* tells how parents can help their baby grow into a happy childhood—by helping him to grow up, keep well, enjoy his food, get as much sleep as he needs, learn to take care of his body; by letting him play and exercise; and by providing foods he needs.

These are the publications selected for the child nutrition bookshelf. They have been reviewed briefly, so that you may choose those to fit your needs. Happy reading!

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Feeding Hospitalized Moppets

Feeding the two- or three-year-old child in the hospital often presents a vexing and time-consuming problem. The small child is in the process of learning to like solid foods, and many foods and flavors still are new to him. Information about the child's diet at home is essential to a happy hospital experience for him. This information can be obtained from the parent when the child is admitted.

A list of foods he has learned to enjoy will serve as a guide in fixing his trays. Is he still eating chopped foods? Does he enjoy his milk more from a bottle or a cup? Does he drink his milk at mealtime or between meals? Does he like to feed himself? Which cooked cereals does he like best? Is he used to eating his egg at breakfast or later in the day? Do any foods disagree with him? The right answers will save time and result in a happier patient.—*From* Food News, *October 1953, distributed by the Maine Department of Health and Welfare, Augusta, to 325 licensed homes and hospitals in the state and to the state institutions.*

The Meanings of Food[1]

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THERE are two old adages which I will take as the text of this presentation. The first is: The way to a man's heart is through his stomach. For the nutritionist this should be reversed to read: The way to a man's *stomach* is through his *heart*. By this I mean his feelings, his emotions, his attitudes, his prejudices, his food habits. The second adage is: You can lead a horse to water, but you cannot make him drink. And this may be paraphrased as follows: You can lead a person to food, but you cannot make him eat.

The dietitian must concern herself as much with the personality of the individual with whom she is dealing as with what she has to offer him. To accomplish her prime purpose of regulating and guiding what goes into a person's mouth, the dietitian must learn to listen carefully to what first comes out of this same mouth (or if need be out of the collective mouths of groups). Otherwise, she may find herself in the position of having more than mere words thrown back in her face. It is not by any means sufficient to offer an individual a menu or a diet and let it go at that. In some cases, this may suffice, but in many (I might almost say the majority), it will not. Even with so-called "normal people," the question of food is weighed down by many emotional factors. Witness the elaborate menus in our restaurants, the disappointment and anger of people when they cannot get a choice item because it is all gone.

You may say that this is "natural." I agree; it *is* natural, but it is important for the dietitian to think about these reactions in terms of their meaning in relation to diets. *Why* do people react in this way? Why won't an individual eat what is "good" for him? Why does he like certain foods and dislike others? Where do people get their "peculiar" ideas about food? How do they develop food fads, food idiosyncrasies, and so on?

We know some of the emotional factors which lead to such results. For example, it has been reported (1) that infants' preferences for orange or tomato juice coincide with the taste of the adult feeders and that in a number of cases in which, due to external circumstances, a baby was transferred to a feeder with an opposite preference, the child switched his choice, too. Or, in another instance, an older child shared its mother's intense dislike for eggs. When the mother was separated from the family by illness, the child was placed in the care of the paternal grandmother, who might be called an "egg enthusiast." The child developed a strong attachment for this grandmother, and with this a strong liking for the hitherto detested eggs.

Such observations coincide with the many observations of individuals under psychotherapy, and to the incidental social observations which may often be made when food preferences and dislikes are discussed. They demonstrate that emotional reactions to foods develop early and last for many years. Witness our national preoccupation with spinach which even Popeye the Sailor could not counteract. Furthermore, these reactions are often automatic and, at times, violent, taking the form of disgust or even nausea and vomiting.

CULTURAL CONDITIONING

Aside from traumatic occurrences which may precipitate isolated food antipathies, there are other long-term factors which create definite food preferences, whether for certain types of food or for certain ways of preparation. These are mainly cultural and familial. We know that certain cultural groups prefer certain foods which other groups may reject or dislike. A patient once reported that he was disgusted by the very sight and smell of spaghetti. His family had been the only non-Italians in a poor neighborhood in which they had been forced to live because of his father's work. His mother had impressed on her children that they were better than their neighbors, and above all should never accept invitations of their playmates to eat at their homes because the food was unclean and unhealthy.

Experiences of the World Health Organization have shown that one cannot arbitrarily change die-

[1] Presented at the 36th Annual Meeting of The American Dietetic Association in Los Angeles, on August 25, 1953.

tary habits or introduce new foods without extensive psychologic preparation.

Recently, I read an article (2) on the voyage of the good ship *Bounty*, which has been celebrated both in the novel and the movie, *Mutiny on the Bounty*. Few people know, however, that there was a very serious purpose for the voyage and that it had to do with food. Captain Bligh's voyage was to transport the breadfruit tree from the South Seas to the West Indies. The planters of the West Indies wished to use it as a cheap food for their slaves. Even after the failure of the famous first voyage, the mission was still considered so important that Bligh undertook a second one. This time he succeeded, and these trees were successfully introduced into the West Indies. But, unfortunately for the planters, the slaves did not "take to" the breadfruit, and all of Captain Bligh's trouble was seemingly in vain. But all was not lost, for the breadfruit did provide food for pigs and other animals for a long time. It has only been in recent years, long after the disappearance of slavery, that breadfruit had been incorporated into the native diet. This little known side of Captain Bligh's misadventures could well serve as an object lesson for us.

RESIDUAL EMOTIONS FROM INFANCY

Food is one of the first things that we demand when we come into the world. For the infant, it is one of the most concrete evidences that there is an external world. The child in the first year of life is to all intents and purposes primarily a mouth. The infant puts everything into his mouth (often to the disgust of his mother). This is the channel through which he learns the feeling, the taste, the smell, the quality of the whole world around him. What goes into the mouth and starts on a journey through the rest of the gastrointestinal tract has a profound effect on the way we feel, most profound in infancy but very important throughout the rest of our lives. From infancy on, the mouth and its appurtenances, although they decrease in relative importance as we grow and perfect the uses of other skills and senses, retain very great significance. Small wonder, then, that the things we put into our mouths, particularly food, should become laden with such strong emotional over-lays, that people react vigorously to dietary changes and regulations. While you, on the basis of your knowledge, know rationally what is good for them, what a "balanced diet" is, what will harm them and help them, they do not necessarily respond with gratitude. You just cannot shove a menu or a diet down a person's throat even with the best of intentions. People are not at all rational about food. In fact, they are not all rational—period.

The emotional attitudes of the family and the culture toward food are extremely important. These may vary from indifference to excessive preoccupation with food and its preparation. For instance, in a report on various behavior problems occurring in normal infants coming from various cultural subgroups, it was found that the incidence of feeding problems among children of Jewish families was much higher than among a comparable group of Negro or Polish children (3). In the latter two groups, other types of behavior problems were more prominent. The reason for this is believed to be that the Jewish woman's participation in the religious life is primarily related to dietary regulations and that, therefore, great emotion is invested in the purchase, quality, and preparation of food. The mother's intensity and preoccupation with food is transmitted to the child and frequently persists throughout life. Similarly, in other cultural and subcultural groups, other attitudes develop and are transmitted from one generation to the next.

Many nutritional attitudes are perfectly rational and well adapted to the products available to the particular group, whether because of economic factors or market conditions. People in general tend to eat what is most readily available to them. Many idiosyncrasies, prejudices, food foibles and fads are harmless and inconsequential—at least until one tries to change or challenge them. Then people rise up in righteous indignation—and the more righteous, the less rational is the basis for their prejudice.

What does all this have to do with the practical, day-to-day problems with which nutritionists are faced? I think, a great deal. It is here that you must train yourselves to be perceptive, sensitive, and skilled in handling the people with whom you must work. You must know what food means to the individual or the group with whom you are dealing. First and foremost, you must realize that one cannot prescribe a diet in one easy lesson or introduce a new food or new way of preparation in one easy meal. There may be an occasional exception, but only occasional.

SYMBOLIC MEANINGS OF FOOD

Let us see what food may mean to people in terms of its symbolic rather than its rational meaning—for food feeds the ego, not merely the body.

Milk, the first food for all of us, usually becomes psychologically connected with security and comfort, particularly if our early experiences with our mothers (or whoever feeds and cares for us) were satisfactory. But these experiences, pleasant or unpleasant, also occur during a period in which we are dependent and helpless. Thus milk symbolically becomes a two-edged sword. It has been reported recently that in times of stress, the use of milk and milk products increases, as if thereby, unconsciously, people seek to reassure themselves through the symbol of milk (4).

On the other hand, it has been found that individuals with gastric ulcers or ulcer-like difficulties

have serious unconscious conflicts about their feelings of being independently functioning adults (5). I do not wish to go into detail about the underlying psychologic conflicts in the so-called "ulcer personality," but rather to turn to the implications of such personality problems in terms of the nutritionist. Think for a moment of the old Sippy diet: if the appearance of ulcer symptoms coincides with an unconscious need to feel dependent and an unconscious fear of being successful and independent, (both of which tendencies the individual cannot accept fully within himself); what better solution than to be organically (and therefore "respectably") sick and be confined to bed on a 3-hr. milk feeding! How much more like an infant could one be—on a symbolic level, at least?

A vaudeville actor once told me that he had struggled all his life to hit the top of the big time: the Palace Theater on Broadway. Three times he had been on the verge, had gotten top billing there—and each time had to go to the hospital with an attack of ulcers a day or two before opening. He said, without realizing what he was really saying: "You know, I hate milk—never touch the stuff when I'm not sick. But it sure is wonderful to get in there and get taken care of like that when you have pains. Does something to you. Funny, how different I am when I'm not sick. A different guy—work hard and very ambitious. But when you got pains, it's nice to relax and have a fuss made about you. Feel like a baby, just lying in bed."

Of course, not all ulcer patients are alike but it is important to know something of the personality with which one is dealing. Diets for ulcer patients are restrictive at best, and if one treads on tender psychologic toes, one may get a somewhat acid response.

REWARD FOODS

How else do we use food in a symbolic way? Candy, sweets, and delicacies are usually "reward" foods. As children, they were given to us on special occasions, or if we were especially "good"—or they were withheld if we were "bad." Many conscientious adults unconsciously continue to use them in this way. If they have been virtuous or hardworking, they "indulge"; if they have been "lazy" or negligent, they feel they do not deserve a "treat." Or, conversely, the self-pitying individual uses such reward foods when he feels sorry for himself, or lonely, or rejected. "Pity poor me; let me have something nice to eat if I can't have the other nice things I want, or feel I ought to get."

Less obvious, but just as frequent is the use of unusual foods, ways of preparation, or delicacies as symbolic rewards or punishments. For instance, a returned prisoner-of-war who felt that the world owed him a living for his "heroism" and "sacrifices" had, on his repatriation, an overwhelming need to eat banana splits (the envy of his childhood and adolescence), as well as an equally overwhelming resentment at the thought of paying for them. While he succeeded for a short while in cajoling free banana splits on the basis of his ex-POW status, he soon met with resistance which resulted in several brawls. For him, the banana split was a symbol of freedom—freedom from prison, and also freedom from the ordinary restraints of adulthood and the restrictions of society and all authority. Fortunately, he was able, with help, to divert his rebelliousness into other channels before getting into too great difficulties and too many fights.

FOOD FOR PRESTIGE

Food can be used for snobbish purposes, too. One may order unusual foods, exotic foods, strange foods to make one an "epicure" or a "gourmet." At least in this way (if in no other), one can build a reputation—even if one doesn't really enjoy such foods at all, as happens in certain cases. An individual who prided himself on knowing all the unusual restaurants in his town had built himself quite a reputation in his circle as a walking encyclopedia of exotic foods. Unfortunately, he suffered from dyspepsia and confessed to feeling most comfortable on a bland, insipid diet.

We could go on endlessly listing the manifold ways in which people consciously, and more frequently unconsciously, utilize food to express their feelings and emotions. But while this might lead to an interesting inventory, it would not bring us much further.

MEANING OF FOOD AT DIFFERENT AGES

Let us instead turn to a different aspect of the food problem. The evolution of the symbolic meaning of food at different age levels is a most engrossing study, both as to the changing feelings and the emotional problems engendered by food and symbolized through food. However, I shall confine myself to discussing two particularly interesting periods of development—the so-called latency period and adolescence.

The first is of particular importance because with the child's entry into school, he is for the first time really outside the confines of his home and family. It is an important period of growth and consolidation for him, during which he begins to solidify his ego structure, his personality, and to test the limits in relation to the world around him. Part of this contact has to do with food. He meets new foods, new ways of preparation; he begins to have some (limited) freedom of choice. He compares his meals (and thereby his family) with those of his peers, who now assume more and more importance in his life. He begins to learn that foods have social status and carry with them implications about himself and his family. Snobbishness or feelings of inade-

quacy may be encouraged by family manners and food concerns, among other things. All these may form focal points for later feeding difficulties and problems—which may become markedly aggravated in the next crucial period, adolescence.

ADOLESCENCE

Adolescence is a stormy, stressful period in our society. We make strange and paradoxical demands on our adolescent youth. On one hand, we expect them to act like adults, to assume adult responsibilities; and on the other, we tend to keep them in the status of children. What is the key to the problem of the adolescent in our society? It lies in the tremendous challenge to emerge from the long preparatory period of life into adulthood. It is the struggle to find himself or herself as an independent, self-sufficient human being. It is the demand on him to find his own clear identity as an individual, as an adequate entity. Much of this struggle is carried on by skirmishes, by probing actions, on the periphery of the basic underlying problem. Just as clothes, staying out late, driving cars, dating, and so on may become battlegrounds, so may food.

Dietary fads, intense food likes and dislikes, reducing or weight-increasing diets, coupled with insatiable appetites, as well as goldfish eating, soda drinking, and all the strange and fanciful eating crazes which occur from time to time, all fall into place in terms of the above considerations. They are devious aspects of the basic problem, symbols of the difficult climb to distinctive individuality. If one can tolerate and overlook these peculiarities, they pass quickly enough in most cases. But, if one opposes them, the fight may be a fierce one, for the adolescent is not fighting for the surface manifestations; he is fighting for a deep and important principle and need within himself, and he will fight tenaciously and bitterly for it, as indeed he must.

The problems which began in latency are carried over and intensified in adolescence. Here, status plays an even more important role. (Fortunately at the present time, the hamburger serves as an almost universal leveler.) And mixed with this, comes the turbulence of the sexual changes and feelings in the body. Our great American obsession, weight, now becomes a problem for girls. The obsession with weight, figure, and form begins—and continues for many years. For the boy, weight is not yet important as such, although form and muscular development are. He will wait until middle-age to develop this preoccupation.

Actually, obesity as such is much less a social than an individual problem—but the preoccupation with the danger of weight gain is most certainly a tremendous social problem. Basically, this is a sexual problem; slenderness equals attractiveness, and attractiveness is thought of in sexual terms, whether so expressed or not.

All this faces the adolescent girl with acute difficulties which markedly accentuate her emotional reactions to food. A young woman once remarked that she used to eat a steak dinner at 5 o'clock when she had a dinner date so that she could eat daintily and demurely when she went out. She had a good healthy appetite, but was afraid it would give her boy friends the wrong impression. Incidentally, one sees in this the equation of food and sex, because unconsciously a healthy appetite implies strong feelings, i.e., strong sexual desires. All these problems, plus the fact that in the main women become housewives and are much more directly concerned with food than are men, eventuate in food having more varied emotional overtones for them. This is compensated for by the fact that the woman has more realistic relationships with food and its preparation than men. I think that a study of the differences in attitudes toward food between men and women would be most fascinating. It could be related to the different social roles of each sex as well as to their individual backgrounds. For example, in the matter of food, woman is basically the giver, the preparer, whereas man is the receiver, the evaluator.

THE ATTITUDE OF THE SICK

There is one more aspect of the emotional web woven around food on which I wish to touch briefly, the attitude of the sick person. All illness has psychologic repercussions. Most universally it results in what we call regression, i.e., a reversion to a more childlike state of reacting to things. Whoever has worked in a hospital, or has ever been sick himself, is well aware of this. Food habits and attitudes are, of course, also affected. Food likes and dislikes which have long lain dormant may be reactivated—particularly in the form of pickiness and finickiness, creating a serious problem for the hospital dietitian, although it must be recognized as inevitable.

This brings up a most important aspect of nutrition which I have hitherto neglected—namely, the importance of making food attractive, appealing, and appetizing. The most nutritious diet in the world is useless, unless it appeals to the patient—and the sicker he is, the more deliberate must be the effort to stimulate his appetite. It is even better to sacrifice maximum nutritive value for attractiveness. The dietitian must try, in spite of all the technical difficulties involved, to make the food tasty, attractive looking, and stimulating to the patient's palate. Here again, a careful study would yield fruitful results. It might be possible to work out more satisfactory diets, or at least ways of preparing food, for different categories of patients in relation to the severity of their illnesses.

The same principle is equally valid for any special diets, menus for organizations, school lunch programs, and so on. As a group, dietitians are charming and attractive and feel that personal appearance is

important. If you can also feel that the appearance of the food you serve is important, many of your difficulties will be solved.

MEETING THE PROBLEM

What can the nutritionist do in the face of these manifold complications of the emotional significances of food? She can solve the problem in one of two ways. First, she can deny it, as the non-psychologically oriented doctor solves *his* problem by dismissing the neurotic complaints of his patients with the phrase, "It's just your imagination, go home and forget about it." Unfortunately that's just what the patient cannot do—forget his neurotic complaints. The nutritionist can disregard the individual's subjective attitudes and simply plan a diet, and say, "Here's what you should eat." In this case, however, the patient does exactly what the neurotic cannot be expected to do—goes home and forgets it, i.e., the diet.

On the other hand, the dietitian can take a seemingly more difficult and time-consuming course. This involves taking the trouble to be concerned about and interested in the patient, and more particularly in his feelings and attitudes about food, giving them careful consideration in the planning of a diet. You may say that this takes too much time and that you are too busy. It *does* take time, more time than routine prescribing. But what about the time you spend with repeaters, and what about your failures—either by omission or commission? Success in dietetics does not depend on writing menus—paper is indigestible for the ordinary human being. Success depends on your directives being followed in a rational, sensible way—and this can be accomplished only if you take into consideration the irrationalities which enter between the food and the mouth.

I do not mean to imply that the dietitian must drop everything and run for the nearest exit leading to a school of psychiatry. It is important, however, that dietitians learn to look beyond food to the emotional aspects of eating, just as the doctors are now learning to look beyond organic illness to the emotional aspects of all physical disease.

This does not require extensive training, but it does require some feeling for people as people, rather than considering them appendages to the alimentary tract. Some systematic training should be included in the dietetics course on the principles of modern dynamic psychology as it relates to people, rather than the more traditional academic psychology. In addition, special reference could be given to the psychologic attitudes of food and eating, to the cultural, sociologic, and anthropologic aspects of food. Such courses would ease the work of the dietitian and above all would enable her to distinguish individuals who can accept nutritional guidance on a rational basis, from those with whom more time must be spent and from those with whom any amount of time spent is a total loss.

The dietitian, with the help of such knowledge, would be not merely a technician in the preparation of food, but a human being specially skilled in fostering a more rational attitude toward nutrition. Perhaps the best way for the dietitian to learn how to appreciate the importance of the emotional factors in her patients is to try to evaluate some of her own motives in studying dietetics. She should go beyond the realistic and rational factors which led to her choice, to the personal emotional reasons which drew her toward the field and which helped her finally to decide to enter it.

If she can appreciate her own motives and interests in food and see her own basis more clearly, she will be better able to tolerate the food problems of others. If she will concern herself with the people with whom she had to deal, and their feelings, she will be able to distinguish between actual ignorance of basic nutritional facts, which can be corrected, and emotional blocks, which can be aired, and neurotic difficulties.

A little time spent in learning the type of individual you are dealing with and suiting your instructions to his personality will go a long way. With some psychologic background and some experience, one can learn to differentiate between deeper neurotic conflicts about foods and diets, which require special handling, and the much greater proportion of food prejudices and idiosyncrasies which can be resolved by a perceptive and sensitive approach.

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Ham Labels

When buying canned ham, the label is important. Some are ready for use, some are not.

Cook before Eating applies to hams that have been heated to not more than 137°F.

Ready to Serve or *Ready to Eat* are the same and indicate heating to an internal temperature of 140°F, which is just high enough to kill trichinae. These hams may be eaten as they come from the can, but many feel it is safer and the taste is better if baked before serving.

Fully Cooked ham has been heated to a temperature of 158°F. to be fully cooked throughout.—*From Food Notes for Institutional Food Service, Michigan Department of Health, Lansing.*

Resistance of the Obese to Reducing[1]

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IT IS well established that merely decreasing the caloric intake will invariably result in a reduction in weight. Theoretically, then, the malady of obesity should be relatively easy to treat. But, as any physician, dietitian, or obese patient will attest, this is far from the truth. Obesity is not only a serious affliction but is highly intractable.

Why should obesity be so difficult to treat? The answer in the majority of instances lies in the fact that many obese individuals consciously and/or unconsciously do *not* want to lose weight. This statement may be startling, particularly since many obese openly profess a desire to reduce. This is evidenced by the tremendous amount of money that is spent yearly on "reducing pills," "reducing gadgets," "slenderizing studios," diet periodicals, and so on. True, part of the psyche of the obese is motivated to lose weight, but another part powerfully resists any attempt to reduce.

This paper will discuss the resistances to reducing found in many obese individuals. The data for this investigation were supplied by a study of patients treated in individual psychotherapy, including psychoanalysis; group psychotherapy; or a combination of both. Although most of the patients were women, the following discussion can—except for certain obvious exceptions—also apply to the obese man.

It should be mentioned, however, that this discussion pertains primarily to cases of obesity that are a direct result of some emotional disturbance. Patients who are obese for other reasons are beyond the scope of this paper. For example, there are psychologically well adjusted individuals who are obese simply because they are a part of a familial or cultural group where overeating is a habitual pattern. Other individuals tend to accumulate weight gradually as they grow older; as their physical activity lessens, their food intake often remains the same. Likewise, an athlete who suddenly becomes inactive will tend to put on weight. Then, there are some who derive much pleasure from eating and, consequently, will indulge in overeating and show a tendency toward obesity. Still others will gain weight because they lack an understanding and knowledge of the caloric values of foods. They select food indiscriminately, without regard for its caloric content. All of these individuals—who are obese for non-emotional reasons—can, of course, be best treated by an appropriate dietary regimen.

[1] Presented before the Philadelphia Dietetic Association in April 1953.

HEALTH

Many people have the erroneous idea that overweight is synonymous with health. Insurance statistics (1) definitely refute that concept. Nevertheless, certain obese believe that their avoirdupois is an external manifestation of their good health and a protection against illness. They, consequently, have an exaggerated fear of losing weight lest they fall prey to some horrible disease. This concept probably was engendered by parents, many of whom clung to the antiquated equation that a fat child equals a healthy child and that, therefore, it was important to stuff food down little Johnny's gullet; otherwise some virus would get him.

As soon as an obese individual begins to lose weight, his friends and associates are quick to notice even the slightest change in his appearance. Naïve comments about how much thinner he looks are often followed by an account of some person who died or suffered a horrible calamity as a result of dieting. This, naturally, upsets the patient who then allays his fears by breaking his diet.

EMOTIONAL SECURITY

Obesity may bolster one's emotional security. It may represent strength and power, thus counteracting the feeling of weakness and insignificance found in many obese individuals. Bruch (2) states that

"the large physical size provides at least a symbolic semblance of being big and strong." To many obese persons, a large frame is an effective shield against the hard thrusts of reality. Consequently, they resist losing weight because of their fear of becoming vulnerable to life's stresses. In another paper (3), Bruch refers to Falstaff who says: "If I do grow great, I'll grow less." (King Henry IV, Part I, Act 5, Scene iv). In other words, Falstaff, with an amazing amount of insight, believes that were he to become wealthy and powerful—and thus more secure—he would no longer need his excessive weight.

However, emotional security is an internal feeling and cannot be obtained by external embellishments. Thus, an insecure person may try to achieve this state by accumulating money. He becomes wealthier and wealthier—but still feels insecure. For the same reason, an obese person accumulates fat and becomes fatter and fatter. It is significant, too, that many obese also have money problems. Just like the miser who will not part with his money, so the obese individual resists giving up his fat. But money and fat are poor substitutes for genuine emotional security.

FEAR OF LOSING LOVE

Losing weight and becoming more beautiful is considered by some obese women to be a hostile act. It implies competing with other women, thus incurring their criticism, disapproval, and loss of love. In the unconscious, other women represent a mother or sister whose beauty and slimness the patient had always admired and envied. Further, to be prettier than mother or sister is a forbidden wish, the realization of which produces guilt feelings. By remaining fat, the obese woman attempts to deny her competitiveness and secret desires to be pretty and thus hopes to retain friendship and love.

CASE HISTORY. A young obese woman with extraordinary sales ability would invariably overeat each time she had been outstandingly successful at her work. By becoming fat and unattractive, she hoped to counteract her success and deny her unconscious wishes, namely to be better than the other women in the organization (mother). Her obesity was her attempt to display to others her passivity and ineptitude; it was her plea for acceptance and love.

HOSTILITY

On the other hand, obesity may be an expression of hostility, usually in the form of rebellion and defiance against a parent or parent-figure. Most obese are passive individuals and cannot verbally express their hostility (4). Obesity is their only effective weapon, and, therefore, they are reluctant to relinquish it.

CASE HISTORIES. A patient purposely overate to put on weight whenever she felt hostile toward her mother. She was afraid of her very domineering mother and could not openly express resentment to her. She said: "The only way I can get back at my mother is to become fat—that really riles her."

Another patient, a young dietitian, resented her mother who was critical of her and constantly belittled her size. Early in group therapy, she learned that her overeating and overweight were a defiance and rebellion against her mother. This was further substantiated by the fact that she invariably lost weight when her mother went away on vacation during the summer, only to regain it shortly after the mother's return.

AVOIDANCE OF MATURITY

Generally speaking, obese individuals are relatively immature. Like other immature people, they show characteristics of dependency and passivity. They are narcissistically oriented and lack a genuine ability to give to others. Further, they are reluctant to grow up, mainly because they are fearful of being adults and assuming adult responsibilities. Their obesity permits them to remain dependent on their families or spouses and to receive their care and solicitation. They use their obese state as an excuse to avoid assuming responsibility and adult behavior. The secondary gain associated with their obesity produces a strong resistance to losing weight.

CASE HISTORY. A thirty-three-year-old housewife and mother of two children weighed 205 lb. when she started treatment. She was the oldest of four living children, having three younger brothers. An older sister had died shortly before the patient was born. The mother apparently rejected the patient. She not only favored her sons, but was overly critical and demanding of the patient. Frequently she raved to the patient about her dead sister's superior beauty and talent. It is not surprising that the patient became obese even as a young child. This obesity increased her feelings of inadequacy and self-consciousness. She avoided social contacts and responsibility. Her only source of pleasure was playing the organ in church. When she was twenty-five she met a man who proposed marriage. When her mother was away on a vacation, she ran off and was married. However, she was unable to assume fully the responsibilities of being a homemaker and mother. The husband, being sympathetic because of her obesity, catered to her and relieved her of many responsibilities. Her mother was a frequent visitor to her home where she supervised the rearing of the children. Although the patient resented her mother's intrusion, she also enjoyed it because she was relieved of responsibility. She used her obesity as an excuse to avoid assuming her responsibilities and felt justified in relying on her husband and mother as long as she was obese. The secondary gain she derived from her obesity interfered seriously with her treatment.

DEFENSE AGAINST NARCISSISTIC INJURY

Although they appear to be complacent, the obese, as a rule, feel inadequate and inferior. Consequently, they are very sensitive and easily hurt. These personality characteristics developed long before their obesity; but, of course, obesity tends to

accentuate them. They avoid people and social situations. Eating becomes their only enjoyable activity. A secondary gain then develops, for obesity becomes a weapon of defense against anything that might injure their pride. It becomes an excuse or justification for most of their shortcomings. They rationalize: "I am obese and therefore handicapped. Any failure or shortcoming I may have is due to my obesity."

CASE HISTORY. An eighteen-year-old boy, weighing 250 lb., began to gain weight shortly after his entrance into high school. History revealed that his older brother, who had recently graduated from the same school, had been an outstanding scholar and athlete. The patient tried to emulate his brother but, unfortunately, was not so well endowed. His teachers, who remembered his brother, were quick to point out the difference. A mild depression occurred, and he began to overeat. This overeating continued until he was moderately fat. He then became more jovial. He no longer had to compete with his older and more gifted brother. His shortcomings and failures were easily explainable—at least, to him; he was fat and therefore handicapped.

Young girls often try to explain away their unpopularity by attributing it to their overweight. "How can any boy be interested in me?" they ask. "If I were thinner, I'd surely have many more dates." The probable truth is that they are too self-conscious and even fearful of the male. They make no effort to socialize and join mixed groups. They blame their obesity for their lack of popularity and thus save face and ease their hurt pride.

IDENTIFICATION

Some investigators claim that there is a hereditary basis for obesity because of its frequent occurrence in the offspring of obese parents. One study (5) reported 82 per cent of obesity cases to be in families where one or both parents were overweight. However, the bulk of the evidence fails to substantiate this claim. An inherited factor, in contrast to obesity, is not readily susceptible to environmental changes. Under strict surveillance, a significant weight loss can easily be accomplished with a decrease in caloric intake. Furthermore, an overweight child of obese parents can lose weight just as well as an overweight child of normal parents.

There are more probable explanations for this significant statistical occurrence. First, there is the factor of habit. As mentioned earlier, there are families and even certain cultural groups (such as the Pennsylvania Dutch) who make almost a fetish of eating. All their meals contain an over-abundance of food. Obesity in these families is mainly a result of a cultural pattern of overeating. Second, children by association develop a method of handling anxiety similar to their parents. If the parents relieve anxiety primarily by overeating, then the children also learn to do the same. Finally, there is the important factor of identification with a fat parent. Parents represent the ego-ideal for their children, that is, their personality traits, appearance, behavior pattern, and so on are adopted as standards. Thus, in many instances, an obese individual may identify himself with a fat parent. Usually the identification is made with a beloved parent; however, it can also be a hostile identification.

CASE HISTORY. A young, obese woman had ambivalent feelings for her mother. She loved, admired, and respected her mother, who was a warm and devoted parent. Her father, however, was a moody and sadistic individual who often physically abused his wife and children. The patient's hostility for her mother stemmed primarily from the fact that her mother, a very passive and submissive person, failed to defend and protect the children from their father's wrath. For a long time the patient could not emotionally recognize that she harbored resentment for her mother. The slightest hostile thought pertaining to her mother resulted in tremendous feelings of guilt. Because of this she had to deny constantly any hostility for her mother. Although she was a very gifted person, she avoided success because she considered it a hostile act to be better than her mother. This denial of hostility, furthermore, resulted in a "hostile identification" with her obese mother. To be fat like her mother was an attempt to deny her hostility for her.

RESEMBLANCE TO PREGNANCY

In the psyche of some obese women, obesity is equivalent to pregnancy, and a fat abdomen is a manifestation of their "pregnancy." This fulfills their wish, which may be conscious or unconscious, to be pregnant. Richardson (6) describes a case where the injection of food had the symbolic significance of impregnation, and abdominal fat represented a child in the womb. Schick (7) reports a case of a young girl in whom stoutness and pregnancy were synonymous. Her overeating, resulting in obesity, expressed her desire to be pregnant. Pseudocyesis—false pregnancy—is a psychosomatic disorder in which there is an intense desire to be pregnant. In addition to many signs and symptoms resembling a normal pregnancy, these cases show an enlargement of the abdomen, and in many instances a pronounced gain in weight (8). The wish to be pregnant, although not a common cause for obesity, should be considered in every woman who resists losing weight.

DEFENSE AGAINST SEXUALITY

Many obese women are sexually inhibited. Sex is associated in their minds with sin, dirt, and threat of punishment. They are torn between a wish for sensual pleasures and the demands of their strict conscience. This conflict may be resolved by becoming fat. By being fat and unattractive, they are reasonably protected from sexual advances of the

opposite sex. One obese patient felt that men considered her to be pregnant and therefore would not make a pass at her when she walked down the street. On a deeper psychic level, these women, by attempting to deny their femininity, are protecting themselves from their own sexual desires.

CASE HISTORY. A forty-two-year-old mother of two children, ages eighteen and twelve, discovered she was pregnant. She had not planned on the pregnancy and was unwilling to be burdened with the care of another child. It had been her hope and intention, as soon as her two children were fairly grown, to indulge herself in developing her artistic talent which she had neglected. She also revealed that her husband was sexually impotent and that she had thoughts of philandering as soon as she could be free of her household duties. Her pregnancy, therefore, was a severe blow to her. Following the birth of her child she began overeating and gained 40 lb. in three months. The increased weight resolved her conflict. It stifled her sexual desires, and she was able to fulfill her role as a wife and a mother satisfactorily.

LOW SELF-REGARD

The obese often have a contemptuous, low regard for themselves. This is frequently manifested by their unkempt appearance. They feel markedly inadequate and inferior to others. Compliments are not graciously accepted because they feel unworthy of them. Not only do they exert little or no effort at self-improvement, but find sundry ways to depreciate themselves further. Obesity is the chief method employed to enhance this self-depreciation. By being fat, they appear unattractive, and this is in keeping with their opinion of themselves. They resist losing weight because they would feel uncomfortable if they were slender and attractive. The incongruity—namely, to appear attractive yet feel ugly—would be too disturbing. As one woman expressed it: "Losing weight and becoming attractive would make me very uncomfortable; it would be like wearing a mink coat over a cheap cotton dress."

This feeling of low self-esteem, although enhanced by obesity, stems originally from the early childhood environment. History of obese patients reveal, for example, that the parents were often hypercritical and belittling. Some were frankly rejected by their parents. Many relate that the parents openly favored another sibling. The goals set for them by their parents were often too demanding or impossible to reach. In addition to these environmental situations which are conducive to a feeling of low self-regard, there is present in some a strong element of guilt, which may be unconscious. Guilt, a result of any transgression in thought or action against the conscience, is an important factor in causing a lowering of an individual's self-regard. Moreover, many obese individuals are prone to have excessive guilt feelings because of a hypertrophied conscience.

SELF-PUNISHMENT

Since excessive weight detracts from their appearance, makes physical activity more cumbersome, and is harmful to health, one justifiably wonders why so many obese exert little or no effort to decrease their food intake. In addition to the aforementioned reasons, there is another possible explanation for this behavior—namely, that obesity fulfills a strong need for self-punishment. Obesity is an excellent form of self-punishment, since it is relatively painless yet exerts a detrimental effect on the physical and social status of the individual. The need for self-punishment often arises from a feeling of guilt. Guilt creates an unpleasant state of tension which can be allayed only by some form of self-punishment. These dynamics are illustrated in the following cases:

CASE HISTORIES. One of the members of group psychotherapy was a passive observer at first, but after several sessions she was able to express her feelings of resentment for her mother. She related how her mother had always dominated and belittled her. She frequently referred to her mother's "sharp tongue." As she ventilated her feelings and gained support from the group in handling her mother, she began to lose weight. She lost 50 lb. in a period of three months. One day she reported that her mother had been hospitalized for cancer of the tongue. Shortly, thereafter, she began to overeat and was unable to return to her diet. It was apparent that she felt very guilty about her negative feelings which she had expressed for her mother. Also, being a devoutly religious woman, she thought that her references to her mother's "sharp tongue" had influenced the site of the cancer. Her overeating and resultant obesity was a form of self-punishment.

Another patient, during treatment for a severe neurotic disturbance, developed intense positive feelings for the therapist. Her sexual longings for him were clearly evident in her phantasies and dreams. These caused her to have tremendous guilt feelings, since she had been reared in a puritanical environment where sex was completely tabooed. During this phase of treatment, she gorged herself with huge quantities of food and would not stop eating until she experienced physical pain. As a result of these eating bouts, she gained an excessive amount of weight. Her self-contempt was further manifested by her disinterest in her home and by her unkempt appearance. When her positive transference feelings were finally resolved and when she was able to face her sexual thoughts without developing intense guilt, her overeating ceased. She then began to lose weight and showed a greater personal pride.

The tendency to self-punishment may, in some instances, be part of the personality structure, especially of a masochistic person who unconsciously delights in inflicting on himself some form of punishment. Self-punishment may also represent a displacement of anger, originally intended for another person, onto oneself. This is commonly found in passive individuals, like the obese, who have great

difficulty in expressing their hostility. They either suppress it or, more commonly, take their anger out on themselves.

RESISTANCE TO DIETING

Finally, the process of dieting itself presents so many difficulties, real and imaginative, that many obese persons prefer to retain their excess weight rather than go on a diet. Dieting appears to be such a simple procedure to those who do not have an overweight problem; but, to the obese, it is a loathsome and painful undertaking. The ominous significance of dieting is summed up by one patient who quipped: "Eat, drink, and be merry, for tomorrow ye diet." The reasons the obese find dieting so difficult follow.

Curtailment of the Oral Function

Obese people are orally constituted—that is, the activities of their mouths, especially eating, psychically serve a very important function for them. Dieting is very disturbing because it curtails this oral function. For example, the obese often resort to eating during moments of anxiety. Eating temporarily allays anxiety because of the unconscious significance of food. According to Bruch and Touraine (9), food represents security. Bychowski (10) equates food to mother, and eating is an attempt to acquire security by the oral incorporation of mother. Eating, also, may be an attempt to regain the secure feeling that the infant experienced at the mother's breast (11).

The reasons obese patients complain of fatigue, irritability, depression, and tremulousness when they start dieting are understandable. These symptoms result from anxiety which they can no longer relieve by overeating. It is during these periods of anxiety, for which they have a low tolerance, that patients frequently go off their diets.

As mentioned before, obese people have difficulty in expressing aggression. They suppress their anger because of their fear of retaliation and disapproval. It is commonly observed that overeating occurs during times of anger. Eating either tends to relieve the anxiety resulting from the suppression of anger (12), or it may symbolically represent a cannibalistic devourment of an object (13). Deutsch (14) describes a case in which overeating of pungently flavored food occurred during certain phases of treatment. It represented an attempt of the patient to assert his masculinity and aggressivity by devouring the analyst. Without the opportunity to overeat, the obese are deprived of their only familiar mechanism of handling their aggressive and hostile feelings.

Lastly, food provides a gratification of inner needs. Although he may present an outward appearance of happiness, the obese individual is basically an unhappy person. He feels frustrated, discouraged, and self-depreciatory. Food is the one thing in life he can depend on to give him pleasure. He indulges himself in this pleasurable pursuit of eating whenever he feels that he has been denied the usual pleasures of life or whenever the problems of living have become too stressful.

> CASE HISTORY. A young and fairly attractive girl felt miserable because her friends had frequent dates and she did not. Her only source of pleasure was in eating, particularly sweets. She said: "If life is not good to me, I'll be good to myself. I won't deprive myself of food—the one thing that can always give me enjoyment." Furthermore, when she ate she felt self-sufficient, not requiring anyone at that time for her emotional gratification. However, when a young man began showing an interest in her, her overeating stopped almost immediately.

Greenson (15), says, "Most bored persons resort to oral activities. The bored individual's feeling of emptiness is similar to the experience of the child waiting hungrily for the breast. . .Tension and emptiness are felt as a kind of hunger—stimulus hunger. Since the individual does not know for what he is hungry, he now turns to the external world with the hope that it will provide the missing aim and/or object."

Resentment of Restrictions

Most obese persons resent the restrictions which dieting places upon them. They rebel against any procedure—such as dieting—which restricts their independence and freedom of action. This rebelliousness is a reaction to early environmental experiences. History often reveals that one or both parents were excessively restricting, demanding, and domineering. As children, they were compelled to obey their parents and repress their resentment because of fear of retaliation and loss of love. As they grow older, they tend to overreact to restrictions with defiance and rebelliousness. This reaction is especially pronounced when an attempt is made to restrict their food intake. Eating is a very personal matter, and any interference in that activity is considered to be a restriction of one's freedom and independence.

A few years ago, the author experimented with cortisone in the treatment of obesity. Since this hormone raises the blood carbohydrate level, it was theorized that conceivably a decrease in appetite would result. In one instance, 75 mg. were administered daily to an obese woman who professed a desire to lose weight. It was very effective in the beginning. If she overate, particularly sweets, she became nauseated. Her caloric intake, of necessity, was voluntarily decreased. Within one week she lost 7 lb. The success of this procedure, however, was short-lived. Although she continued to take the medication out of loyalty to the therapist, she re-

sented the power of the pills in controlling her appetite. She soon found that she could counteract the effect of the medication by eating frequently throughout the day, but in small quantities. After a few weeks she regained her lost weight. This was clearly a reaction of rebellion against a mechanical attempt to restrict eating. Similar reactions of rebellion are observed in patients during the administration of anorexigenic drugs.

It is commonly found that obese patients will indulge in excessive eating just prior to going on a diet. This indicates not only rebellion, but an attempt to reassure themselves that they and they alone control their eating habits. It may also represent the last fling before submission to a diet. The rebellious nature of the obese person is often displayed when the therapist attempts to place the patient on a diet—or even suggests dieting.

CASE HISTORY. A twenty-two-year-old obese girl started group therapy because she was determined to lose weight. She felt her weight prevented her from being popular with the opposite sex. She gained support from the group and developed a higher self-esteem. Toward the end of the ninth session, she announced that she felt ready to go on a diet. The therapist complimented her and encouraged her to carry on with her intention. The patient did not show up at the tenth session. When she attended the eleventh session, however, there was no appreciable loss in weight. She revealed that after she left the ninth session she gorged herself with her favorite pastry and continued to overeat for several days. She was angry at the therapist because she felt he was making demands on her to lose weight, and her overeating was a rebellion against his dictates. She felt so guilty about her overeating that she could not attend the tenth session.

Guilt Feelings

Guilt feelings often result from dietary indiscretions. These feelings are intensified whenever the indiscretion occurs while the individual is on a diet. A person may react to this infraction with depression and self-incrimination. These guilt feelings cause further eating, and thus a vicious circle is started. The painful consequences of breaking a diet may be sufficient cause for the obese patient to resist going on another diet.

CASE HISTORY. This feeling of guilt is clearly illustrated in the dream of a housewife who temporarily went off her diet. On the day preceding the dream she was visited by her mother who complimented the patient on losing weight and then proceeded to describe how ugly the patient was when she was fat. The patient was hurt and angered by her mother's remarks. She felt that her mother did not love her when she was fat. As soon as the mother left, she had an uncontrollable urge to eat. On the way to the corner store to purchase ice cream, she saw a very fat neighbor who, afflicted with arthritis, was hobbling about with a cane. That evening she dreamt that she saw this fat, arthritic neighbor and admonished herself that she too would become fat again and develop arthritis if she did not stop overeating. She awoke in a cold sweat.

Fear of Failure

Many hesitate to go on a diet because of their fear of failure. During therapy a patient had a dream that she was riding in a vehicle which was going up a hill. The therapist was the driver. The road was "bumpy," and she was afraid she would fall down. Obese patients fear, like this patient in her dream, that the road they must traverse to lose weight is an uphill struggle, fraught with obstacles too difficult for them to overcome. They are fully aware that the temptation to eat often overpowers their motivation and determination to eat less. Failure to stay on a diet results in a loss of self-respect; moreover, they are exposed to criticism from friends and relatives. Rather than risk failure, they make no effort to lose weight. It should be mentioned here, too, that obese individuals are often perfectionistic. They expect complete and rapid success from any of their undertakings. Thus, they become easily discouraged, especially if they do not lose a considerable amount of weight immediately.

Lack of Motivation

A common resistance to dieting is just lack of motivation. To undertake a tedious task like dieting requires a very strong motivation. An important event—like a forthcoming marriage—may act as an incentive for an overweight person to lose weight. Actors and actresses diet and maintain a normal weight because their livelihood depends on it. Occasionally, fear about one's health will cause a person to diet, but this incentive is, unfortunately, rare. Without adequate motivation, few will start dieting voluntarily or have the will-power to stay on a diet. The obese woman who is unhappily married or the embittered spinster has little motivation to reduce. Dieting means depriving themselves of food—their main, and often only, source of pleasure. They wonder, too, what they will gain if they lose weight, whether life will continue to be cheerless and ungratifying. They recall cynically how they lost weight on some previous occasion but, nevertheless, their unhappy life situation remained unchanged.

Inability to Do without Food

Perhaps the most important resistance to dieting is due to the inability of the obese to withstand deprivation of food. If they feel hungry they cannot wait, but must eat immediately. In extreme cases they become panicky if food is not readily available. This over-reaction to hunger and the exaggerated importance placed on food imply that there are deeper meanings to food than just satisfying physiologic hunger. Early environmental history of obese

patients often reveals a marked deprivation of love. Food was offered in place of affection in early childhood, and thus food became closely associated with affection (9). Deprivation of food is equivalent to deprivation of love and vice versa. This association continues throughout life and is frequently observed in the reactions of patients. For example, a twenty-nine-year-old obese patient undergoing analysis had periods of overeating which exactly coincided with periods when she felt rejected, particularly by the opposite sex. Food was a substitute for the love she was denied.

Many patients relate that their parents laid great stress on the importance of food. They may have been deprived of material things, but food was always plentiful. They were ingrained with the concept that food was essential for life. Considerable anxiety was shown whenever a child did not eat adequately. This type of conditioning will naturally produce anxiety when hunger is not immediately satisfied. An obese adult recently remarked: "I had a horrible sensation when I missed breakfast; I felt I would just starve to death."

Furthermore, the obese resent being deprived of food because eating is such a pleasurable activity. They react to food according to the "pleasure principle," which is in essence: "I want what I want, when I want it." They prefer to gratify their desires immediately, rather than to compromise or postpone. The temptation to eat some delectable food becomes greater than their restraint. This lack of self-discipline makes it difficult for them to remain on a diet.

DISCUSSION

Decreasing the food intake is the only effective method to lose weight. An obese patient who comes for treatment should be given an appropriate low-caloric diet. If the motivation to reduce is sufficiently strong and if there are no interfering emotional difficulties, treatment will be successful. However, if the patient fails to lose weight on a proper reducing regimen, a resistance to treatment should be suspected. This resistance must be uncovered and removed before a successful reduction in weight can be accomplished.

The problem of obesity has many facets. Each patient who cannot adhere to a diet has his own conscious and unconscious reasons for remaining fat or resisting treatment. By being on the look-out for these resistances, the astute therapist—physician or dietitian—will become aware of their presence. Establishing a good relationship with the patient and winning his confidence will often help to uncover his resistances. The best method for removal of these resistances will, of course, depend on their cause. For example, a discussion of the problem with the patient and a sympathetic explanation of the cause for his resistance often may result in a subsequent loss of weight. Some cases may require reassurance; this is effective in patients who associate illness with a loss of weight. Others, particularly those who have a fear of failure, benefit from encouragement and support. If the patient fails to respond to a superficial approach, the possibility of a deep-rooted emotional problem should be considered. If feasible, the patient should be referred to a psychiatrist for evaluation and possible therapy. The emotional maladjustment must be corrected before diet therapy can be effective.

Many cases of obesity are helped by a kind and sympathetic attitude on the part of the therapist. A healthy, positive relationship with the therapist may in itself be sufficient to overcome a patient's resistance. In fact, many patients experience their first incentive to reduce from a desire to please their therapist. An authoritarian, punitive approach is not recommended. Many patients rebel against this attitude. Although the more submissive patient may lose weight with this approach, he usually regains it after treatment is discontinued. Furthermore, this attitude tends to create excessive guilt feelings in patients whenever they break their diet, which in turn tend to cause overeating; thus a vicious circle is started. Rather than be tormented by continuous pangs of conscience, patients frequently stop treatment and continue unmolested with their overeating. It is far better to de-emphasize the dietary transgression and ease the patient's guilt feelings. At the same time it is important to help the patient understand why the diet was broken (16).

Every effort should be made to help the obese patient grow up emotionally. As he becomes emotionally mature, he will face life with confidence rather than fearfully retreating behind his fatty protection. He will become more secure and thus less sensitive to life's stresses and strains. He will begin to realize his true assets and abilities and to use them instead of obesity in making an adjustment to life. His resistance to weight reduction will lessen, also, when he discovers that obesity is an ineffectual and impractical way of dealing with life's problems. He will regain his lost pride and self-respect and will become better motivated to lose weight. An enhanced self-discipline will make the task easier. As he frees himself from the bonds of his immaturity and neurosis, he will discover new and more wholesome avenues of satisfaction. Only then will he be willing to renounce his oral needs and gratifications.

SUMMARY

Decreasing the caloric intake will invariably result in a reduction in weight. Furthermore, most obese individuals profess a desire to lose weight. Yet, treatment of obese patients often is unsuccessful. The chief cause for this failure is the presence of conscious and/or unconscious resistances to reducing.

The reasons for remaining obese and resisting attempts to reduce are: (1) a belief that it is associated with health and a protection against illness; (2) a support to one's emotional security; (3) assurance against loss of love; (4) a method of expressing hostility; (5) an excuse to avoid maturity; (6) a defense against narcissistic injury; (7) an identification with a fat parent; (8) a representation of pregnancy; (9) a defense against sexuality; (10) a manifestation of low self-regard; and (11) a form of self-punishment.

Finally, obesity may persist because of (12) a resistance to dieting. Patients resist dieting for the following reasons: (a) dieting is disturbing because it curtails important oral functions; (b) they resent the restrictions dieting places on them; (c) unpleasant feelings of guilt follow dietary indiscretions; (d) there is a fear of failure of dieting successfully; (e) lack of motivation; and (f) inability to withstand deprivation of food.

If a patient fails to lose weight after he has been placed on an appropriate low-caloric diet, resistance to reducing should be suspected. The causes for this resistance must be uncovered and removed before a successful loss of weight can be achieved.

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10-Point Program for Nutrition

At the Food and Nutrition Institute held in Washington in December 1952, it was agreed that if nutritional gains are to be maintained and furthered, current programs should be reoriented to present-day nutrition problems and knowledge and to new approaches in education. In 1941, when the National Nutrition Conference was held, top priority was given to programs to improve the nutritional content and distribution of national food supplies in order to eradicate dietary deficiencies. With the great nutritional program that has resulted from the setting of nutritional goals and developing means of attaining them at that Conference, the focus of the problem has changed today. Now, to gain "good nutrition for all," Institute speakers and participants indicated that research and educational efforts in food and nutrition should be intensified. The following 10-point program summarizes the thinking.

1. Discover better ways to communicate nutrition information and to motivate people to use it.
2. Develop further knowledge of what to eat for best nutritional health.
3. Locate the individuals and the population groups whose diets are in need of improvement.
4. Promote the systematic teaching of nutrition in the professional training of teachers, doctors, dentists, nurses, public health and social workers, and home economists and keep their knowledge up to date through in-service and other programs.
5. Teach the "how" and "why" of food selection for good nutrition from kindergarten through college.
6. Discover ways of making the school meal experience more educational.
7. Help homemakers and other food managers responsible for the food of others learn to select food wisely and to prepare it in appealing, nutrient-conserving ways.
8. Use mass media and group approaches to give better understanding of scientific nutrition, to combat food fads and nutrition misinformation, and to help overweights and underweights with this nutrition problems.
9. Be alert to opportunities to improve the nutritional value of the community's food supply.
10. Join forces with workers in education, health, agriculture, and the food industries to achieve an effective and integrated nutrition program.

Current Comment

Dining Rooms for Ambulatory Patients[1]

DORIS BOYLE THOMPSON

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Increasing numbers of inquiries from hospital administrators, physicians, and architects regarding dining room service might indicate the need for evaluating this type of service in the hospital. Of course, the use of dining rooms for patients in all hospitals is not feasible, but modifications of this type of service are worth considering—particularly from the therapeutic viewpoint. In the main dining room of many hospitals, including tuberculosis, neuropsychiatric, and government, full cafeteria service is receiving high acceptance. In other instances, a small dining room located immediately adjacent to the serving unit is proving very successful. A possible trend may be seen in some modernly designed hospitals today where solaria have been located in the center of each floor only a short distance from the serving pantry so that the solaria—especially on the maternity and surgical floors—may be used for serving patients. Yet another alternative in architectural planning is to have a main patients' dining room on a floor approximately half way up the building.

IMPORTANCE OF PLEASANT ATMOSPHERE

Regardless of where the serving area is located or the type of service used, the physical atmosphere should be one of "dining out." We all recognize that pleasant surroundings readily dispel moodiness and despondency. Particularly is this so with those ill of body or mind.

In imaginative decoration and in services over and above the expected, can lie the difference between the happy and the disgruntled patient at mealtime.

Let us visualize the dining room in which we would enjoy eating. The eastern sun streams through a large expanse of windows, burnishing the soft colors of pastel tinted walls and carefully chosen draperies. Here patients may gather in surroundings that speak the language of leisure. The *explicit* purpose of such planning is to entice patients; then, after their arrival, to please them so thoroughly that they will find it easy to persuade themselves to return for each meal.

Now, let me draw for you another mind picture of the family around the dining table. Be the family large or small, surely all of us can recall vividly pleasant memories of discussions of people and happenings, of plans for the morrow and the future, and the enjoyment of foods prepared and served as only our mothers could do. For many of us, these scenes can never be repeated, but they remain forever a true part of our lives, one of the foundations of our training in sociability which promotes the living of normal lives. Where, may I ask you, is there greater conduciveness to enjoy the good fellowship potentially present in most human beings and which can be subdued so easily when circumstances force retirement to one's self? The sight of a man or woman eating alone always brings a thought of lonesomeness to me.

To show how the use of small dining rooms has benefited patients, I should like to tell you about an article which appeared in a Baltimore paper honoring Alma Bering on her retirement after thirty years as a dietitian at the Sheppard and Enoch Pratt Hospital in Towson, Maryland.

Miss Bering is a dietitian who was firmly convinced that food should do more than satisfy hunger. Early in her career she realized that the preparation and service of food is an art—that food should bring visual pleasure and social function and serve as a common bond, bringing one into pleasanter relationships with one's fellow man. Through the years she cast convention aside, putting a ban on tray meals for all patients who were well enough to walk.

As a result of her ingenuity, small dining rooms became a reality. The windows framed a view of acres of rolling, green, elm-shaded hills. Placed by the windows were tables set with starched linen, gleaming crystal and silver, and huge bowls of flowers.

The patients she served in small groups loved it. To them, coming to the dining room was one of the first signs that they were on the mend, a step in reintroducing themselves to normal group living.

On one particular day when the doors opened to the eighteen persons ready for breakfast, they knew it was a gala occasion. The table spoke for itself. There amid grape leaves, the patients saw luscious, halved cantaloupe filled with fresh apricots and topped with sprigs of mint. It was a farewell breakfast—two patients were leaving to resume their places in the world.

[1] Presented at the 36th Annual Meeting of The American Dietetic Association in Los Angeles, on August 27, 1953.

THERAPEUTIC DIVIDENDS

Although it may be impossible to serve food on such an elaborate scale in all hospitals, there are many ways in which an attractively decorated dining room can help the patient adjust to his return to the community. This type of service can act as a therapeutic measure through socialization—taking the patient "out of himself and his troubles."

The patient is removed from the isolation of his own room and thoughts, or from the proximity of the disagreeable aspects of those who are not in his stage of convalescence, and the going to and from his meals provides part of the early activity indicated in the present-day medical program.

Even with selective menus and private patient fare and the best equipment and service, hospitals encounter problems of cold food, delayed trays, and change of appetite.

In many large hospitals, it is necessary to transport a tray two-thirds of a city block after it is served. Counting tray loading time in the floor serving kitchen plus transportation time, it is obvious that the food could not be as hot as desirable when it reaches the patient. Also, the time needed for tray service to a large number of patients makes abnormal hours for meal service to some patients necessary.

Effective nutrition education of the patient during his hospitalization is one of the important responsibilities of the dietetic service, not only in hastening his recovery but in enhancing its maintenance. Dining room service offers the desirable opportunity for the dietitian to chat informally with more patients in a suitable environment. These contacts can be utilized to build up a background of fundamental knowledge regarding the correlation of good nutrition and health. The diet given to patients ready to be discharged can then readily be custom-tailored for the home situation by modification of this basic information.

CONSIDERATION OF COST

While it is impossible to present specific figures, there is an economical advantage in operating dining rooms for ambulatory patients, because the amount of food prepared for dining rooms can be more easily adjusted to actual consumption. A tray for a bed patient must be set up without complete knowledge of his immediate appetite. Adjustment is difficult to make in tray service. In the dining room, the patient has an opportunity to indicate his desires in keeping with his immediate appetite. It is easily seen that this can decrease food waste and may simultaneously increase the patient's food consumption if he is not overwhelmed by a too-full plate.

Working from the hospital census, it is quite easy to prepare foods in proper quantities. If all patients were served trays, 100 per cent production would be necessary. Using cole slaw as an example, there could easily be a 30 per cent loss in money and food. If, in serving 400 patients, you maintained a 30 per cent saving daily on an item with a 3-cent portion cost, you would save more than $100 a month. Actually, there are savings on almost all items, at various percentage rates.

The following illustrates another form of saving in plate waste. Even with bed patients who are the most seriously ill group, the figures are significant. In one particular hospital, 43 per cent of the patients served are bed patients. But, they are responsible for 54 per cent of total plate waste. Waste in ounces for three meals for bed patients is almost double that for patients eating in the dining room, as indicated in Table 1.

The personnel required for each type of service varies with the physical set-up of the hospital. In general, however, fewer employees are required for dining room service, since not as many hot food conveyors must be loaded and delivered. Service can be concentrated in one or in several areas, and patients can be served much faster, leaving more time for employees to devote to other duties. Also, the length of the serving period can be greatly reduced.

In emergencies, it is much more difficult to provide personnel for several isolated serving units than for a single, large unit or several smaller units where duties can be consolidated.

With proper original planning, much less equipment will be required in a hospital designed for ambulatory food service. The number of hot food conveyors, tray carts, ward refrigerators, space, and so on, can be cut approximately in half. It would be possible, also, to use smaller dishwashing machines in the floor pantries.

TABLE 1

Comparison of food waste for dining room and tray service

MONTH	TOTAL MEALS SERVED	PATIENTS SERVED				TOTAL WASTE				AVERAGE DAILY PLATE WASTE	
		Dining rooms		Wards		Dining rooms		Wards		Dining rooms	Wards
		Number	Per cent	Number	Per cent	Weight	Per cent	Weight	Per cent		
						lb.		*lb.*		*oz.*	*oz.*
February	11,932	7,369	61.8	4,563	38.2	2,630	47.2	2,936	52.7	5.71	10.29
March	12,838	7,906	61.6	4,932	38.4	2,656	46.2	3,090	53.8	5.37	10.02
April	12,567	7,767	61.8	4,800	38.1	2,487	45.9	2,931	54.1	5.12	9.77

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MERITENE vs. EGGNOG
Nutritive Value Comparison

	EGGNOG	MERITENE MILK SHAKE
Protein	12.5 gm.	15.8 gm.
Fat	12.6 gm.	8 gm.
Carbohydrate	17.7 gm.	25.5 gm.
Calcium	.24 gm.	.5 gm.
Phosphorus	.27 gm.	.4 gm.
Iron	1.5 mg.	4.4 mg.
Vitamin A	843 I.U.	1745 I.U.
Thiamine	.12 mg.	.7 mg.
Riboflavin	.45 mg.	1.6 mg.
Ascorbic Acid	2.0 mg.	26.4 mg.
Cholesterol	288 mg.	21 mg.
Calories	233	237

Eggnog nutritive values from "Food Values of Portions Commonly Used." Bowes & Church, 1951.

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SUMMARY

It appears, then, that properly placed small dining rooms in hospitals would be desirable, both because of benefits to the patient and because of savings which could be effected in food cost and in the time of personnel of the dietetic and nursing services. Now let us quickly review the advantages of dining room service for ambulatory patients.

(a) It provides a means of implementing the doctor's prescription for early rehabilitation.

(b) The pleasant atmosphere of an attractive dining room is conducive to pleasurable eating, sociability, and relaxation which assures easier adjustment and aids in recuperation before discharge. Cheerful, gay surroundings, and moderate exercise in walking to and from the dining room have a favorable effect on the patient's mental outlook. Appetites are stimulated and improved.

(c) It shortens the time and distance between the preparation and serving unit and offers a direct service to the patient, assuring delivery of food at the height of its palatability. Patients have the opportunity to select their meals and to have foods cooked to order, such as eggs, toast, grilled meats, and so on.

(d) The use of the cafeteria line and patient's dining room to teach the patient his nutritional needs and the necessary modifications for his prescribed diet is a most effective tool in developing his self-reliance following discharge.

(e) It develops a closer relationship between patient and the dietitian.

(f) It provides an indirect but useful incentive in the field of motor skills to the physically handicapped, such as the paraplegic and orthopedic patients. By elevating the height of tables, it is possible to serve wheelchair patients at the table and have food service employees carry their trays from the serving counter.

(g) It aids in conserving the time of dietetic and nursing personnel.

(h) The food prepared can be more easily adjusted to the immediate appetite of the patient thereby eliminating excessive plate waste.

Improvements in Tableware[1]

CLARICE D. GULLICKSON

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Improvements are being made in appearance, durability, and serviceability of tableware.[2]

In choosing it for home or institutional use, several factors must be kept in mind. Appearance should be pleasing, allowing the ware to fit in well with any table setting. Color and decoration must be durable, in good taste, and sufficiently versatile to meet varied requirements. It should, at the same time, be available in a variety of designs and colors, thus allowing a choice. It should also be available in open stock, so that easy replacement or addition is possible at a nominal cost. It should blend well with any serving dishes used. It must be durable and sufficiently strong to meet all service requirements with a minimum of breakage, chipping, or crazing. It must be easily cleaned, show minimum bacterial retention, and retain this characteristic throughout its lifetime. It must have high resistance to scratching and ordinary abrasive wear; its surface glaze should not wear off, even after hard use. It should be light in weight, delicate in appearance, while retaining all necessary durability and strength. Finally, its price should be reasonable and its replacement cost low.

[1] Presented at the 36th Annual Meeting of The American Dietetic Association in Los Angeles, on August 26, 1953.

[2] Representatives of industry contributed generously to provide the material included in this paper.

GLASSWARE

Ordinary glass tableware of the past in the low- and medium-price field failed to meet a number of these requirements, and its acceptance for general use was, therefore, limited. This was due to its fragility, its low resistance to heat shock, its lack of pleasing appearance from the standpoint of finish and decorations. In the institutional field, it was generally unacceptable because of its fragility and appearance. Its use was, therefore, limited to locations where low initial cost was the primary consideration or to the high-price field where its transparency was used primarily for decorative effect.

These problems were recognized some years ago and certain glass manufacturers instituted an extensive research program to solve them. As a result, great strides have been made in this field.

New opal glasses have been developed which are translucent, have a high surface polish, and contribute much to the appearance of any table setting. To combat the problem of fragility, special compositions were produced and special toughening processes developed. These steps greatly improved the strength of the ware, and serviceability is two to four times greater than previously possible. This has also allowed the production of lighter weight ware. Breakage from normal heat shock has become a thing of the

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past, the ware being so durable that it can be transferred from refrigerator to oven to table without fear of breakage. The material can be subjected to detergents and even steam sterilization without harm. Surface crazing does not occur, even under these severe conditions. Under normal cleaning procedures, its bacterial retention is negligible. It is resistant to abrasion, and since it is homogeneous throughout, there is no surface glaze to wear off, exposing a porous body beneath. It has a luster and a sparkle which are immediately pleasing to the eye.

In the field of decorations, notable advances have also been made. Durable decorations in a variety of colors and designs can now be produced. Prices are said to be reasonable.

The toughening process referred to above has also been applied to tumblers. As a result, light weight, so-called "shell" tumblers have become practical for home and institutional use. Breakage in these tumblers has been found to be only one-half to four-fifths of that previously encountered. Their strength compares favorably with that of much heavier tumblers.

Research on further development of glass tableware is continuing and the promise of additional improvements is great. A wide variety of designs will be possible. Decorations will be further improved; new glasses allowing entirely new methods of decoration are on the horizon. The use of complementary lines which can be used in the oven, on the stove, in the refrigerator, and even in the freezer will be extended. New glass tints and colors will be produced. This work on the glassware of the future should open great new avenues in the tableware field.

PLASTIC DINNERWARE

Molding material for dinnerware was first developed during the early days of World War II. First testing revealed that this material was unique in resistance to breakage and heat, had a very hard surface, absorbed little water, and was odorless and tasteless. In addition, it could be molded in any color of the rainbow.

Because melamine plastic dinnerware producers wanted uniformity of quality throughout the industry, commercial standards to provide adequate quality minima for greatest service life for heavy-duty alpha-cellulose-filled melamine tableware were drawn. These standards were agreed on jointly by members of industry and representatives of the United States Department of Commerce. The standards were also to guard against the use of inferior plastic materials. Any buyer of this ware should insist that his purchase meet these standards.

Industry faces a problem of reconciling users to the fact that plastic dinnerware does not last forever. They have found that there is a point at which it is cheaper to replace plastic dinnerware than to continue the maintenance of worn surfaces. Ultimately after long service, the surfaces lose their luster and even acquire a shabby look. Such dishes should be destroyed. The reluctance of some users to discard worn dishes because they are still whole is unfortunate, and the plastic industry is hoping that users will respond to further education.

Plastic dinnerware has been criticized by institutional users for staining, and rightfully so. Basically this criticism stems from its durability. If this ware is subjected to scouring, the lustrous resin surface is removed and the rate of staining increases rapidly. The melamine tableware producers recognize that staining does occur and is a problem to the user. They recommend that when this happens, the oxygen-releasing type of stain removers be used, since they will in no way harm the surface of the ware. These stain removers should be used at the first appearance of the stain and at periodic intervals thereafter as required. The industry does not favor the use of hypochlorites, because continued use will eventually etch or attack the molded melamine surface. In addition, dishwashing compounds which are slightly caustic tend to keep stain at a minimum. These detergents, if properly used in dishwashing machines, will keep the plastic dinnerware clean and bright.

Decorative effects, higher styled shapes, and the addition of new colors are the trends today in plastic dinnerware. These advanced styles are appearing first at retail but may influence future institutional patterns as institutional users seem to be leaning to more homelike styles, although it is not believed that conventional designs are becoming passé.

PAPER CUPS AND CONTAINERS

Food service departments, including hospitals, are gradually increasing the use of paper cups and containers in their feeding operations.

The paper cup first came into widespread use at the urging of Dr. Samuel Crumbine (originator of the "swat the fly" campaign), who wanted to replace the common drinking cup at public water fountains. At the urging of public health officers, its use spread to restaurants and soda fountains. Improvements and developments by manufacturers brought the introduction of paper cups and containers for all types of hot and cold foods and beverages. Thus, their use has largely been an outgrowth of the American interest in sanitation. The maintenance of a high degree of sanitation is, of course, very important as are also efficiency, economy, and convenience.

Most hospitals seem to use paper in three ways. (a) They adopt it first for medicine service. (b) Then, they introduce it for food, perhaps first by using the paper soufflé or portion cup for relishes, condiments, and other foods which are served in small amounts or for which there are no standard china or plastic dishes, and then widening the use. (c) They introduce paper service during periods of overload or epidemics and then continue its use.

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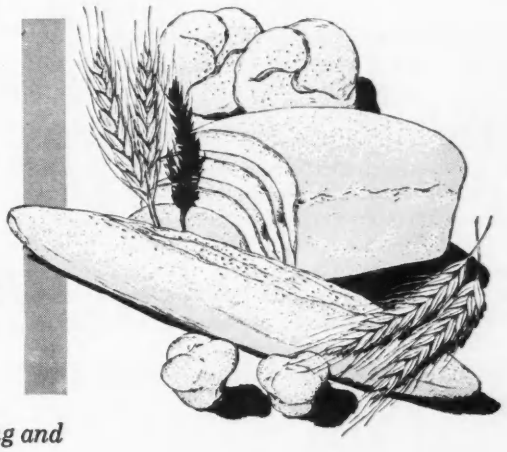

A Brief History of Milling and Baking by SCIENCE WRITER

CHAPTER I. *Cereal Grains and the Start of Civilization*

MAN, THE HUNTER

Grain cultivation is an achievement of man which profoundly affected his way of life and directly started him on the road to civilization. Before he learned to live on grains, he subsisted by feeding on animals and, occasionally, on seeds. He was primarily a hunter. His home was a cave. But, because even a few hunters can soon destroy the available game, he was nomadic.

A CRUCIAL TURNING POINT

There came a time when man decided not to migrate in search of new hunting grounds when his game supply became scarce. Instead, he decided to make a stand where he was and get a living from that place. This was a crucial turning point in man's long history. The change did not happen instantly and not everyone abandoned the nomadic life. But happen it did—and it was successful!

Man learned to live on a new diet—the grains, and in the process he made a new way of life.

ROLE OF THE GRAINS

Because dry cereal grains do not spoil in storage but keep their nutritive value and flavor, man learned to depend on them as the mainstay of his diet. When supplies of other foods failed, the grains satisfied his hunger and supported his life. New habits, new arts, even a new society, were formed around his need for steady supplies of grain food.

MILLING BEGINS

Gradually man learned to separate the unwanted parts of the grain from the meal. Essentially, that is a definition of milling, even today. In learning how to do this better and more efficiently, in learning how to increase his supplies of grain, man insured his survival. He learned how to live a different life, too. Instead of grinding grain with his teeth, he learned to grind it with stones. Instead of eating the meal raw, he found that it had a better taste when moistened, and even better than that when the wet meal was heated and later, baked.

Since the start of Paleolithic times, more than 200,000 years ago, grain cultivation, milling, and bread making have been bound up inextricably with man's living. In fact, they have been the basis of his life.

IN OUR DAY

It is a far cry from prehistoric times to today when Nature's vitamins are duplicated by the tons to enrich white flour and white bread for better nutrition. The manufactured vitamins are identical chemically and in biological activity with Nature's own product. A vitamin is still a vitamin regardless of its source. So efficient is large scale manufacturing that vitamins are sold at a lower cost than if they were extracted from natural sources.

This article is one of a series which is being published in professional nutrition and dietetic journals and which will be widely reprinted for educational purposes. Reprints of this and succeeding chapters may be obtained without charge by writing the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec. Roche is proud that its vitamins are used to enrich white flour and white bread for the better nutrition of Americans and Canadians.

*This is the title of a definitive history of milling by John Storck and Walter Dorwin Teague, published by the University of Minnesota Press at Minneapolis and copyrighted by the University of Minnesota. It is used with permission as a source of material for this series of advertisements.

The next chapter titled: "The Beginning of Grain Cultivation and Grinding" will be published soon.

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Several hospitals use paper exclusively for food service, and the industry indicates there is a growing trend toward its use both in quantity and the number of purposes for which it is employed.

Hot-drink cups vary in capacity, and may be uncoated or plastic coated. Most are doublewrapped for heat retention. All are flat bottomed. Some have lids of either the snap-in or snap-over type, and have covers that fit like a box top.

Paper creamers have made a place for themselves because those of china and glass are difficult to wash properly by machine. The paper creamers are light on the tray and add a crisp, clean appearance to the entire service. The same is true of the soufflé cup and butter chip.

Water cups are the most widely distributed of the paper cup family. Hospitals which must set a standard of sanitation in a community are careful to provide approved dispensers for water cups which insure that they will be grasped by the bottom rather than the rim.

A survey of 3500 hospitals was recently conducted by the Field Research Division of the Paper Cup and Container Institute (1). The survey revealed that paper is used extensively in the service of nourishments, dietary foods, water service, and as a supplement to other ware. The reasons given were: economy and efficiency of operation, sanitation, and convenience.

VITRIFIED CHINA WARE

Representatives of the china industry indicate they would like to make a ceramic body by adding some mysterious ingredient so that a dish would bounce instead of fracture, but so far they have not found it possible or practical. As we know, china is made from pure clay, a finely ground rock crystal, and a pure feldspar, which is the mineral that, at a very high temperature, will melt to form a glassy band which cements the whole body together. To make a strong body, the rock crystal must be greatly increased at the expense of the other two ingredients.

Vitrified hotel china is rugged and tough and will withstand hard and continuous blows without excessive breakage. But, to have china stand up against such blows, it is necessary that the blow be delivered by something softer than the china, such as wood, hard rubber, or plastic. When china hits against a hard material—such as other china, a steel shelf, an exposed pipe—or is dropped on a concrete floor, the force it can withstand is lower when the other material is softer.

Fortunately for both the vitreous china industry and the food service manager, the ways of preventing excessive breakage are said to be within the practical means of attainment. Often excessive breakage has been experienced because of changed conditions, such as new and untrained employees, excessively crowded working areas, rush periods, or shortage of chinaware, requiring each piece to be handled too often during a meal period.

TESTING STRENGTH OF CHINA

To test the resistance of chinaware to breakage, an apparatus has been developed which duplicates the types of fractures encountered in everyday service and serves as a quality control instrument to maintain standards. This apparatus has a hardened steel hammer of known weight which swings at the end of a pendulum that drops or swings from a known height. A scale indicates foot-pounds of force. A foot-pound is defined as the force of 1 lb. dropping 1 ft. By measuring the foot-pounds of force required to chip or break china ware, its strength is determined. You may notice that most written specifications require tableware that meets certain foot-pound standards of resistance.

A similar apparatus uses a weighted, plastic billiard ball as the weight. A plate will chip when struck with a steel hammer at about 0.3 ft.-lb., but will withstand a blow about 500 per cent greater from the plastic ball.

Thus dishrooms should be arranged to take advantage of this quality of china ware. Containers and racks, into which soiled dishes are placed, should be plastic-coated; and drainboards and floors should be covered with rubber matting or wood. In other words, employees who bang dishes when in a hurry are less apt to break them if supplied with something reasonably flexible or softer than the china to bang them against.

TYPES OF DAMAGE IN CHINA

A vitrified china ware body is actually compounded not only to withstand hard blows, but also to break in a definite and specified manner. A certain type of blow coming from a definite direction always leaves a telltale crack or fracture that permits the user to trace it to the source and apply corrective measures.

The "bow" crack always occurs on the edge of a plate or cup. If the blow causing the crack were harder, it would have caused a chip. The point of the blow is the place where a straight radial crack intercepts the curved crack on the edge. The "bow" crack also appears on the edges of cups. Bumping cups together when stacking may cause such cracks, but storing them in individual, compartmented racks would prevent this. If the blow on the edge of a plate or cup does not come at an angle to the lip or rim, cracks radiate from the edge to the center. On plates, these cracks can come from hard blows against such things as pipes or sinks, and in cups from the same course or in picking up two together with unnecessary force. This type of crack is common, but is easily and practically preventable.

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acteristics, is the so-called "star" crack, which occurs on the bottom side of a dish when the blow is struck on the top or opposite side. It comes from hitting the bottom of one piece of china with that of another. When this crack is formed, it is not readily discernible, but in the next use it becomes visible and sometimes causes institutional people to say that the chinaware cracked when hot food was placed on it.

There is also the hazard to the surface glaze of "seizure" with china ware. Seizure is the property of two similar, clean surfaces to scratch each other where no film of soil or other type of lubricant is provided or has been washed away. Because china ware washes clean, seizure may occur. The "seized" or scuffed glaze can be prevented by instructing people handling the plates not to throw or slide them against each other. They should be picked up or placed on top of each other without sliding or scuffing.

Cracks at the junction of the handle and cup, or handles which become completely detached, result from poor workmanship. Where the handle is properly designed and put on, it becomes an integral part of the cup and will shear off only after an extremely hard blow. The preferred type of cup is one in which the body and the handle are made in one piece.

China ware glaze is a product of research. It is built to clean easily and to have a hardness greater than the cutlery which is used on it. To test surface resistance or "scratchability," a special testing machine was developed. The plate is turned slowly as a stainless steel knife is drawn regularly across it through a measured distance. The end of the knife is weighted to equal 3 lb., or that force necessary to draw a sharp knife through an average piece of meat. There are specific rules for sharpening the edge of the knife after a specified number of revolutions. This machine, working continuously, can apply in 1 hr. the so-called "cutlery test" which is equal to many years of service. To pass this test, there must be no visible scratches made by the sharp knife on the surface. Scratches are made visible by rubbing the ware with lampblack suspended in a light oil. The same method is also used for testing for sanitation with radioactive food soil.

Whether glass, plastic, paper, or china, the relative merits of all tableware are, of course, the subject of constant discussion among all those engaged in any aspect of food service, producer and user alike.

Many factors influence the purchasing of tableware, including investment in present dishes, glass ware, and dishwashing equipment; particular needs; and even personal preference of dietitians and administrators. However, it is heartening to note the variety of equipment which is available to hospitals and other food service departments, and the fact that makers of all products are devoting considerable effort and research to solve the problems of the food service manager and striving constantly to improve both the quality and variety of the products available.

REFERENCE

(1) Field Research Division: A Report on a Survey of the Increasing Use of Paper Cups and Containers as Reported by U.S. Hospitals. New York: Paper Cup and Container Institute, Inc., 1954.

Bread Staling

Why does bread get stale? At the American Institute of Baking, studies indicate that during the first two or three days after baking, the most important single change is increasing firmness of the bread as the soft part of the starch—the gel—becomes more rigid. After the third day, the bread becomes harder because of the loss of moisture from the gluten.

In a paper given at the recent meeting of the American Chemical Society in Kansas City, Dr. Welker G. Bechtel, Director of Laboratories of the Institute, reported a study undertaken to learn the role of the various components of flour in the staling process. Flour was broken down into several fractions: gluten, starch, tailings starch (from the hull), and solubles (salts). Formulas and procedures were developed for making full-size loaves of bread using these fractions instead of flour. The bread was required to look so much like ordinary white bread that taste panel members would be unaware there was anything different about it.

In studies of the effect of crumb moisture content, it was found that after equal storage periods up to six days, bread of higher crumb moisture content was judged fresher. Bread containing 2 per cent higher crumb moisture than a second bread was judged to be a whole day fresher. Thus it is desirable to produce bread with loaf moisture as near to the legal limit of 38 per cent as it is practical.

Bread made of starch and gluten as the only flour components, with the gluten between 11 and 17.5 per cent of the starch-gluten mixture, was comparable in every way with bread made with flour. With three levels of gluten, freshness remained the same from 20 to 68 hr. of storage. After this, the low-gluten (11 per cent) bread staled rapidly; that with intermediate gluten, much less rapidly; and the high-gluten bread (17.2 per cent) was judged as fresh after 140 hr. as at 68 hr.

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Book Reviews

School Feeding. Its Contribution to Child Nutrition. By Marjorie L. Scott. FAO Nutritional Studies No. 10. Rome, Italy: Food and Agriculture Organization, 1953. Paper. Pp. 129. Price $1. (Available in U.S. from International Documents Service, Columbia University Press, 2960 Broadway, New York 27.)

This report on a survey of school feeding practices around the globe was written "to increase interest in the supplementary feeding of children throughout the world". It is for governments, administrators, and all organizations and persons interested in child welfare measures.

The modern concept of school and supplementary feeding programs is shown in its historical setting. Consideration is given to appropriate kinds of food and meal patterns with emphasis on making good the deficiencies of the diet in the home. Reports of studies in many parts of the world indicate the beneficial effects of well planned feeding programs and the value of supplementary foods on the health of children. An account is given of the organization and the administrative procedures followed in various countries. Educational and social aspects of school feeding are presented, and reference is made to the importance of respecting cultural patterns. Also discussed is the relationship of feeding programs to national and international policies of food production and distribution.

The experiences of international agencies in the feeding of large numbers of children through school programs and of the particular problems encountered in reaching preschool children are recounted.

An appendix gives a brief account of school feeding practices in sixty-one countries, showing how each country has developed a scheme to meet its particular needs. Included also are recommendations for the storage and use of dried milks and methods for evaluating the use of milk (or other foods) in school lunch programs.

This publication will be of value to governments or agencies interested in initiating or expanding existing child feeding programs, whether such programs are to meet emergency conditions or to alleviate long-term deficiencies. The realistic and practical approach to school feeding should stimulate many countries to look critically at the nutritional status of their children and their food supplies and to develop feeding and food production programs which are compatible with their culture.—*Evelyn Anderson, Rochester, New York.*

Cultural Patterns and Technical Change. By The World Federation for Mental Health, directed and edited by Margaret Mead, Ph.D. Tensions and Technology Series No. 8. Paris, France: UNESCO, 1953. Paper. Pp. 348. Price $1.75. (Available in U.S. from the International Documents Service, Columbia University Press, 2960 Broadway, New York 27.)

This compact manual contains an illuminating and fascinating survey of five diverse cultures, presented to show the broad implications of introducing change into an established culture. The survey was undertaken to suggest lines of approach to many cultural and social situations which will be encountered when technical assistance is introduced. It provides a rich reference for the expert, including the international structure for technical change; studies of whole cultures; cross-cultural studies of agriculture, nutrition, maternal and child care, public health, and others; and specific mental health implications of technical change.

Assisting the less privileged countries is a responsibility not lightly borne by the more fortunate. However, past experience proves that good intentions poorly executed can be harmful to progress. An initial understanding of the origin and motivation of cultures is of paramount importance.

To this end, the contributing anthropologists and social scientists provide a penetrating analysis of obscure countries. The contributions of economists, agriculturists, social scientists, psychiatrists, and nutritionists are all interdependent in the work of modifying cultures, and the need for cooperation among these disciplines is emphasized. The hazardous practice of altering nutritional patterns by the isolated nutritionist or the ill-equipped substitute is presented with devastating clarity. Understanding and sympathy for the people must precede help.

The cultures evaluated in detail are those of the Burmese, Greeks, the Tiv of Nigeria, the natives of Palau, and the Spanish Americans of New Mexico. Some of the following curious habits of these peoples make the book quotable. Smoking is introduced at the early age of three among the Burmese. The warmth and affectionate attitude of the Burmese toward their young are noted, with the observation that neuroses, as they are known in this country, are unknown there. Swaddling of infants in Greece still has an influence in the treatment of infants, and the complete rejection of the people to intimacy with reference to the human body is evidenced not only in the conversation but the literature of this group. But, these cultures, while permeated with the fears and spiritual attitudes of the past are changing rapidly and, therefore, present even further complications to the observer.

Philosophies more desirable than our own might indirectly benefit our society. The casual attitudes toward wealth and time in some societies is refreshing and perhaps to be envied by those in cultures that hold them in high esteem. At times the authors give the impression that their goal is to have the reader do some introspective thinking and re-evaluating of his own culture.

The book prepares the reader to accept the crude and unusual habits of our world neighbors with tolerance and patience. The prominence that Western cultures place on health and convenience, for example, is not necessarily shared by others. Spiritual and emotional values yield slowly to a scientific approach. The distant goal may have little significance to uneducated people who appreciate quickly-achieved benefits. Also, mistakes in judgment and scientific advice in the past have actually caused regression, making subsequent efforts arduous and perhaps impossible. Residual ridicule and distrust from such catastrophies still persist.

Verification by more than one author, as well as the reclassification of data for convenient reference under the cross-cultural studies, results in repetition which limits the book's potentialities for pleasure-reading. However, the conversational tone makes it a most interesting scientific publication and should enhance its influence. An inclusive bibliography documents this book and provides convenient references for further study.—*Helen E. Olson, Clinic Nutritionist, University of Chicago Clinics.*

RECENT BOOKS RECEIVED

Energy Metabolism and Nutrition. By Professor Raymond W. Swift and Professor Cyrus E. French. Washington, D. C.: The Scarecrow Press, 1954. Cloth. Pp. 264. Price $5.75.

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Our Representatives Report . . .

Food and Beverage Sanitation

A.D.A. Representative

Grace L. Stumpf,
Chief, Dietetic Service,
Veterans Administration Hospital,
Ann Arbor, Michigan

As the result of a three-day meeting in December, a nationwide, cooperative program for better health through food and beverage sanitation will be launched by a new voluntary committee to be known as the "National Industry-Health Council on Food and Beverage Sanitation." The conference from which this committee is an outgrowth met in Ann Arbor, Michigan under the joint sponsorship of the National Sanitation Foundation, the National Restaurant Association, and the U. S. Public Health Service. More than forty representatives of the food and beverage industries, official health agencies, and others heard reports of committees appointed at an earlier meeting (see the Journal, December 1953, page 1236).

The Council represents the most comprehensive unified effort to date on the part of official and voluntary health agencies and of the food and beverage industries to focus attention of the public on the advances in food protection technology and public health practice. A series of pilot studies and field tests in various communities is being planned to determine the effectiveness of all elements of the Council's projected program.

The purpose and scope of the newly organized Council was detailed as: "the development and promotion of agreed principles for the protection of health; and the voluntary coordination of the efforts of industry, health agencies, and the public in the betterment of food and beverage service and the environmental sanitation conditions surrounding such services in the home, at public and private establishments throughout the community."

National Health Forum

A.D.A. Representative

Dorothy M. Kinnear,
Presbyterian Hospital,
New York City

The 1954 National Health Forum, held in conjunction with the annual meeting of the National Health Council in New York, March 24–26, focused on the major problem of providing adequate staff for our health services, voluntary and governmental. Outstanding leaders appeared on the program. The Forum allowed a comprehensive discussion of the various factors affecting health personnel and served to point up significant questions to which voluntary and governmental agencies, including professional associations, must give attention. The participation of experts from the vocational guidance field resulted in significant suggestions for improving materials designed to interest young people in health careers.

The importance of the inter-disciplinary approach was emphasized in discussing the problems of adequate staffing. The inevitability of an increase in specialization as scientific knowledge increases was recognized, but the dire necessity for more effort to assure a "wholistic" approach to the patient was also stressed. Teamwork among many professions and skills and the community at large is required to give a single human being the benefit of all the health knowledge we now have.

Recommendations made by five discussion groups for further work by the National Health Council included: (a) setting up a continuing conference on health personnel to consider next steps and design methods to put ideas into action; (b) finding a means to assemble all material on recruitment in the health fields and asking its evaluation by vocational counselors; (c) calling a conference of vocational counselors and health personnel to discuss opportunities for careers in the health fields; and (d) providing counselors with a single brochure which would give considerable information about all careers in the health field.

Conference on Mental Health

A.D.A. Representative

Alice H. Smith,
Chief, Nutrition Section,
Michigan Department of Health,
Lansing

On February 8 and 9, 1954, the first National Governors' Conference on Mental Health convened in Detroit. Approximately three hundred representatives from forty-six states and the Commonwealth of Puerto Rico attended, including the governors of ten states and many state legislators, mental health officials, psychiatrists, and other professional and state workers concerned with mental illness.

It was pointed out that in mental health (as in nutrition), we have considerably more information and "know how" than is evidenced by the present facilities and practices found in most states. Mention was made of the need for increased budgetary needs for the food service in mental hospitals.

If one could say that there was a dominant theme, it would be "The Need for Research and Training in the Mental Health Field." Although nutrition was not spelled out in the discussion of research programs, surely it would be included in any comprehensive program plans. The need for special training and stipends for financing and training for nurses in the field of mental health was presented by a representative of the National League for Nursing. By implication, this applied to dietitians, too.

Following the conference, the delegates toured the new State Mental Hospital at Northville, Michigan. This is a modern, well-equipped hospital consisting of five units caring for approximately nine hundred patients. When completed, it will care for thirty-five hundred people.

Meats-in-a-Can

and Kitchen-Cooked Meats... Comparative Nutritive Values

From a practical dietary standpoint, meats-in-a-can—preserved by commercial canning—are nutritionally interchangeable with meats of like variety prepared in the home.[1] For taste appeal, for economy and "keeping" quality, and for household convenience, meats-in-a-can are advantageous in many respects.

As the comparative data here shown indicate, kitchen-prepared meats and similar meats-in-a-can are closely alike in the amounts of various nutrients they provide.

COMPARATIVE COMPOSITION OF KITCHEN-COOKED AND COMMERCIAL-CANNED MEATS
(Nutrient Amounts per 100 Grams)

	*Kitchen-Cooked Ham[2]	**Canned Ham[3] (Chopped, Cured)	Kitchen-Cooked Beef Round[2]	Canned Roast Beef[2]
Water	50%	50%	59%	60%
Protein	21 Gm.	20 Gm.	27 Gm.	25 Gm.
Fat (ether extract)	28 Gm.	20 Gm.	13 Gm.	13 Gm.
Niacin	4.0 mg.	4.3 mg.	5.5 mg.	4.2 mg.
Riboflavin	0.21 mg.	0.19 mg.	0.22 mg.	0.23 mg.
Thiamine	0.46 mg.	0.40 mg.	0.08 mg.	0.02 mg.

*Values after conversion from 42% to 50% water basis.
**Values after conversion from 58.69% to 50% water basis.

Experimental studies have shown that the processing which meats-in-a-can undergo leads to little if any greater vitamin losses than does home-cooking of similar cuts of meat. In general, meats-in-a-can retain of their original vitamin content approximately:

60 to 80 per cent of thiamine
90 to 100 per cent of riboflavin
90 to 100 per cent of niacin
80 per cent of biotin
70 to 80 per cent of pantothenic acid.[4,5]

During storage for customary periods, at usual warehouse temperatures, meats-in-a-can show little, if any, further vitamin loss except in thiamine. Even thiamine, a highly thermolabile vitamin, was 52 per cent retained in pork-in-a-can after ten months' storage at 80° F. Retention of the vitamin was notably greater when the canned pork was stored at 38° F.

Since meats-in-a-can are thoroughly cooked in processing, they may be consumed as purchased, merely warmed or mildly cooked. When the meat is moderately cooked in preparation for consumption, little or no further loss in vitamins need to occur.

Recent studies show that meats-in-a-can are excellent sources of needed amino acids.[6] The 18 amino acids determined in these studies appeared in similar ratio and amounts in canned beef, pork, and lamb as in the respective fresh or home-cooked meats.

1. Howe, P. E.: Foods of Animal Origin, Handbook of Nutrition, American Medical Association, ed. 2, Philadelphia, The Blakiston Company, 1951, p. 637.
2. Watt, B. K., and Merrill, A. L.: Agricultural Handbook No. 8, United States Department of Agriculture, 1950.
3. Schweigert, B. S.; Bennett, B. A.; Marquette, M.; Scheid, H. E., and McBride, B. H.: Food Res. *17*:56 (Jan.) 1952.
4. Rice, E. E., and Robinson, H. E.: Am. J. Pub. Health *34*:587 (June) 1944.
5. Schweigert, B. S.: Am. Meat Inst. Foundation, Circular No. 8, Nov. 1953.
6. Schweigert, B. S.; Bennett, B. A.; McBride, B. H., and Guthneck, B. T.: J. Am. Dietet. A. *28*:23 (Jan.) 1952.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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Main Office, Chicago... Members Throughout the United States

Current Literature

Contributed by Mildred Bonnell and administrative dietetic interns, University of Washington, Seattle; Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Mary L. Majerus, Dietetic Intern, Veterans Administration Center, Los Angeles; Elizabeth H. Tuft, Wesley Memorial Hospital, Chicago; and the Journal staff

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 21, March, 1954

* Treatment of obesity: developments of the past 150 years. A. W. Pennington.—p. 65.

Obesity. The history of obesity since the end of the eighteenth century is reviewed, with particular attention to events connected with the Banting dietary. This treatment appears to have been, originally, one in which carbohydrate but not total food intake was restricted. Lacking a rationale, it became modified to fit current concepts; it underwent transformation into a low-calorie diet in which fat was greatly restricted. A more recent diet in which again, carbohydrate is restricted but not the total caloric intake is presented. The diet contains no bread, flour, sugar, salt, or alcohol. The first course of each meal consists of ½ lb. or more of fresh meat with fat, the proportion being three parts of lean meat to one part of fat, cooked weight. The amount is unlimited. The second course of each meal is limited. The patient is allowed a choice of an ordinary portion of any one of the following: potato, boiled rice, half grapefruit, grapes, slice of melon, banana, pear, raspberries, or blueberries. At the end of each meal a cup of black coffee or tea without sugar or saccharine is allowed. Regularity in sleeping, eating, and exercise is stressed.

THE AMERICAN JOURNAL OF NURSING

Vol. 54, April, 1954

* Physical medicine versus dieting for obesity. F. H. Krusen.—p. 451.

Physical Medicine vs. Dieting. Baths, massage, spot reducing, exercise, and other popular fads for losing weight are discussed, and it is shown that they have little if any effect. Reduction in food intake, under the advice and guidance of a physician, is the only method which will produce a permanent reduction in weight. It is pointed out that the greatest difficulty for most persons who have been on a reducing diet comes when they have achieved the desired reduction. They have a tendency to fall back into their old habit pattern of excessive eating. They should be advised carefully at this critical point so that after achieving their proper weight, they can keep it.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 44, February, 1954

* Relationship of research and education in agriculture to international nutrition problems. H. DeGraff.—p. 223.

Vol. 44, March, 1954

Dental public health accomplishments and predictions. J. W. Knutson.—p. 331.

Vol. 44, April, 1954

* National research council studies on milk regulations and milk quality. A. C. Dahlberg.—p. 489.

International Nutrition Problems. Although world production has increased and made possible a significant improvement in the quality of the world-average diet, there is not enough food produced for all the population to have a nutritionally adequate diet. This fault lies partly in the low levels of education of the 60 per cent of the people who produce their living directly from the land. A higher level of education, followed by agricultural education must reach many more of the farmers of the world before food production will be notably increased and nutritional problems minimized. Columbia and Mexico are cited as examples of countries having extremely backward farming methods because of the illiterate and superstitious people who work the land. The United States was used to exemplify a country in which universal education and scientific research applied to production problems make it possible for a seventh of the labor force to produce our food.

Sanitary Milk Regulations. A traveling field staff conducted an investigation in eight cities of sanitary milk regulations to determine the extent to which they contribute to the quality of the pasteurized milk ready for sale to the customer. The quality of raw milk for pasteurization was determined principally by bacterial content. In each city, the records showed no milk-borne diseases for many years, and although sanitary milk regulations for farms varied, there was much uniformity in regulations pertaining to pasteurization. The flavor of the fresh pasteurized milk was generally good, and no sample possessed a fermented or acid odor. Almost two hundred milk samples were analyzed for composition and nutritive value. The cleanliness and keeping quality of the milk are also discussed.

ANNALS OF INTERNAL MEDICINE

Vol. 40, March, 1954

Diabetes mellitus among Indians of the American Southwest. B. M. Cohen.—p. 588.

* An endocrine hypertensive syndrome. Studies on "essential" hypertension. V. H. A. Schroeder and D. F. Davies.—p. 516.

Endocrine Hypertensive Syndrome. Four types of arterial hypertension have been recognized: the renal type in which organic renal parenchymal disease appears to initiate or modify unfavorably the course of hypertension; the arteriosclerotic type in which general arteriosclerosis and late onset (fifth or sixth decades) are the predominating features; the neurogenic type characterized by disorders of personality, fluctuating blood pressure, and early onset; and a variety believed to be accompanied by a disturbance of the endocrine system. The endocrine hypertensive syndrome occurs most frequently in women and usually follows some disorder of the generative tract (menarche, pregnancy, growth of tumor, or surgery). There is a universal rapid increase in weight with "central" obesity associated with "buffalo hump," panniculus, and absence of fat on the distal extremities. The low sodium chloride concentration in the sweat of this hormonal group is not observed in other types of hypertension. In search for the etiologic factor, attention is focused on the ovary, the adrenal cortex, and the pituitary gland. Although no endocrine organ has been conclusively implicated, the adrenal cortex is known to be hyperactive.

ANNALES MEDICINAE EXPERIMENTALIS ET BIOLOGIAE FENNIAE

Vol. 31, Fasc. 4, 1953

* Infections caused by *Salmonella montevideo* and the bacteriological identification of this strain. J. A. Grönroos.—p. 339.

Infections from *Salmonella montevideo*. Six cases of acute infections caused by *S. montevideo* which resemble cases of gastroenteritis are presented. All showed fever, abdominal pain, and, with the exception of one case, diarrhea. The serologic and bacteriologic diagnosis of the isolated strains of *S. montevideo* is described. It is shown that in suspected cases of typhoid, paratyphoid, or gastroenteritis or in certain acute infections, the Widal test alone is insufficient for the diagnosis of Salmonella infections. For determining the etiology, cultures from Widal coagula or blood and from feces and urine of untreated patients are of first-rate importance.

BRITISH MEDICAL JOURNAL

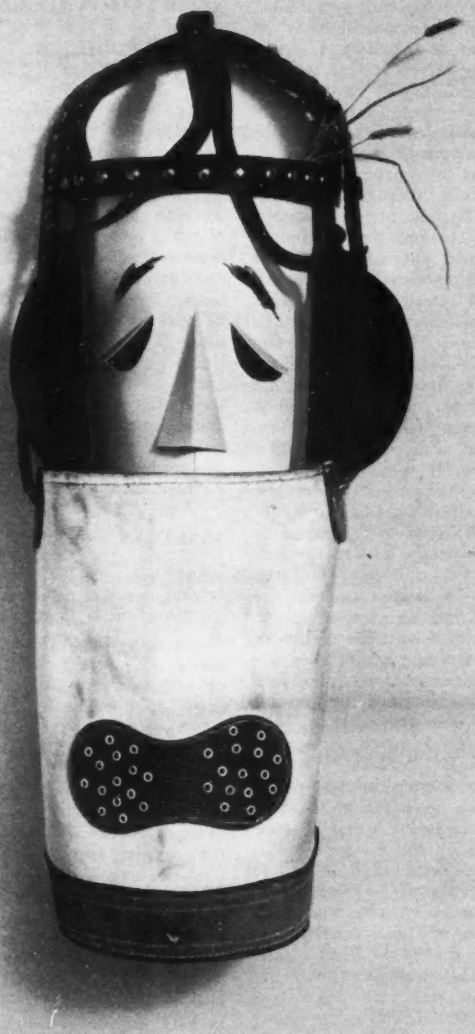
No. 4861, March 6, 1954

* Anemia in kwashiorkor. E. B. Adams.—p. 537.

No. 4863, March 20, 1954

* Changes in dental hypoplasia and caries among the children of Finnish Lapps, 1939–50. R. V. Jones and M. J. Mynott.—p. 682.

Anemia in Kwashiorkor. In a series of twenty-one cases of kwashiorkor, selected only on the presence of pitting edema, dermatosis, and lowered plasma proteins, appreciable normocytic or macrocytic anemia was found in six



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cases. Two-thirds of these children had less than 9 gm. hemoglobin per 100 cc. Anemia may increase considerably as edema decreases and plasma proteins rise. In this way severe anemia may be unmasked. Megaloblastic change was present in two subjects. In six others there were bone-marrow abnormalities consisting of giant metamyelocytes. Two of these had satisfactory hematologic responses to crude liver extract or to vitamin B_{12}. The possible relationship of this anemia to protein deficiency, liver disease, and nutritional megaloblastic anemia is discussed.

Changes in Dental Hypoplasia and Caries in Lapp Children. In 1939 a small survey of Finnish Lapps was made to discover the state of dental health of children living a semi-nomadic existence far from civilization. Since that time, Europe was at war for six years and for seven more has enjoyed a precarious peace. It was thought that these disturbed living conditions might be reflected in alterations in the structure of the children's teeth and their susceptibility to decay. The teeth of 92 settled and 11 nomadic Lapp children were inspected for caries and surface hypoplasia and findings compared with those in 1939. The Enontekio Lapps in 1945 moved to Sweden, where they ate well by European standards (plenty of sugar and vitamin-fortified margarine). In their homes after their return, they were able to trade with smugglers travelling between Norway, Finland, and Sweden who carry spirits, sugar, and margarine. Thus, in addition to their high intakes of vitamins A and D (contributed mainly by the margarine and fresh fish), which are as high as or possibly higher than that of the Inari Lapps, their sugar consumption also was much higher. The state of their teeth is now much worse than that of the Inari Lapps, indicating that they must have been subjected to factors favoring decay to a much greater extent than the Inari Lapps. In this case, a high-sugar diet might be incriminated.

CANADIAN JOURNAL OF PUBLIC HEALTH

Vol. 45, February, 1954

* Public health aspects of water fluoridation. G. Nikiforuk.—p. 43.

Water Fluoridation. The ramifications of a procedure such as the addition of fluorides to water are numerous and the experimental investigations are never complete. There are unanswered questions regarding the mechanism of action and metabolism of fluoride, as well as the metabolism of calcium, iodine, cobalt, iron, and so on. However, the large number of completely negative findings regarding the toxicity of fluorides in the recommended dosages and the irrefutable evidence regarding its value in the partial prevention of dental caries justify the conclusion that bringing the fluoride concentration in communal water supplies to the known optimal for dental health is a prophylactic public health procedure that has an ample margin of safety.

CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 70, March, 1954

* Epidemic jaundice. (Viral hepatitis). S. Mirsky.—p. 308.

Epidemic Jaundice. Three major principles of treatment are of proven value in epidemic jaundice: bed rest, diet, and avoidance of further insults to the liver. A high-protein, high-carbohydrate diet with moderate restriction of fat is recommended. Butter is better tolerated than other fats. Methionine and choline have not been found of value. Further insults to the liver can be prevented by the avoidance of alcohol, surgery, and anesthesia, particularly ether, chloroform, and ethylene. Where emergency surgery is imperative, local or spinal anesthesia is recommended. In the very severe cases, it has been felt that bacterial products from the intestinal tract contribute to liver damage. Aureomycin is, therefore, given.

DIABETES

Vol. 3, January–February, 1954

* Carbohydrate metabolism during pregnancy. J. P. Hoet and F. D. W. Lukens—p. 1.

Carbohydrate Metabolism in Pregnancy. In patients with a diabetic trait or with latent weakness of insulin production, pregnancies provoke a disturbance in the regulation of carbohydrate metabolism. A review is presented of the loss of carbohydrate tolerance and the glycosurias of pregnancy; the fetus of diabetic or prediabetic mothers, with practical directions for avoiding the prediabetic mortality; the pancreas and hypercorticism of gestation; and the functional relationship between the pancreatic islets and the adrenal cortex in man. Experiments and their results are also discussed, such as pregnancy in the animal which has its pancreas damaged by alloxan; the abortifacient action of cortisone; and its influence on placental glycogen.

GASTROENTEROLOGY

Vol. 26, February, 1954

The social and public health aspects of peptic ulcer. G. Alsted.—p. 268.

THE HEBREW MEDICAL JOURNAL

Vol. 2, 1953

* Health and sickness in times of starvation and food shortage. M. Schechter.—p. 193.

Health and Sickness When Food Is Scarce. Results of studies carried on in the Warsaw Ghetto during 1942 on the pathology of starvation reveal that in times of food shortage and strict rationing, it is most important to insure an adequate supply of calories. Next in importance are proteins, minerals, and vitamins. Available food should be prepared especially carefully to insure the best possible utilization. Contrary to accepted views, starvation and semi-starvation did not cause an appreciable increase in epidemics of infectious diseases. If sanitary conditions were satisfactory, there were no epidemics. The investigations showed that the disturbances of the blood, circulation, endocrine glands, and respiratory and vegetative-nervous systems caused by starvation are different from those due to other causes. It was found that a loss of 30 per cent of body weight may still be remediable but that a loss of 40 per cent is usually accompanied by edema and is beyond repair.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 2, February 17, 1954

* Fruit concentrates. Flavor-fortified high-density frozen citrus concentrates. R. G. Rice, G. J. Keller, R. J. McColloch, and E. A. Beavens.—p. 196.

Fruit Concentrates. A recent study shows that increasing the concentration of frozen orange juice from fourfold to sixfold tends to increase both the flavor stability and cloud stability of the product. The sixfold concentrates can be prepared successfully through fortification with peel oil. A feature of interest to those handling institutional-size containers is that the sixfold concentrates do not become as solid on cooling to −18°C. (0°F.) as do the fourfold products. The sixfold concentrates are plastic and capable of more rapid handling on removal directly from cold storage. They also show no appreciable volume change which means that cans may be more completely filled, since less allowance need be made for product expansion on cooling to −18°C. Sixfold concentrates begin to freeze at approximately −15°C. (5°F.) and contain about 2.5 per cent ice at −18°C. while the fourfold products begin to freeze at approximately −8°C. and contain 32 per cent ice at −18°C.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 154, February 13, 1954

* New method of canning corn. Queries and Minor Notes.—p. 637.

Vol. 154, March 6, 1954

* Nutrition after gastric operations. R. M. Zollinger and E. H. Ellison.—p. 811.

Vol. 154, March 13, 1954

* Improved fertility and prevention of abortion after nutritional-hormonal therapy. S. J. Glass and M. L. Lazarus.—p. 908.

Vol. 154, March 20, 1954

* Employment for diabetics. Editorials and Comments.—p. 1005.

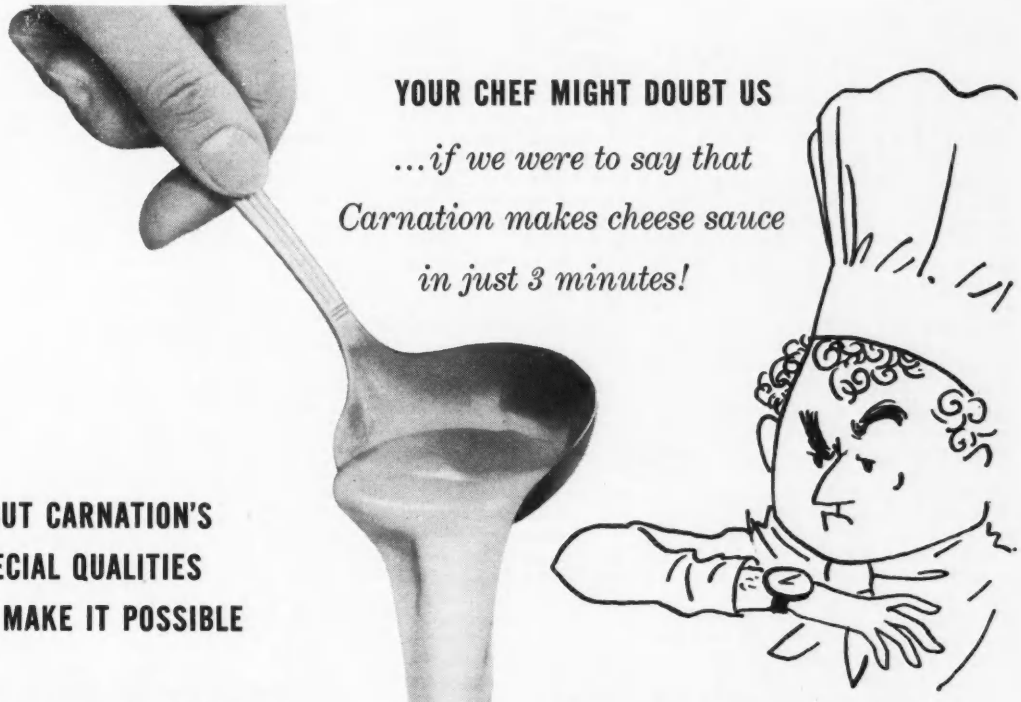
Vol. 154, April 3, 1954

* Clinical usefulness of new milk protein supplement. G. H. Marquardt, G. M. Cummins, Jr., L. A. Riggs, and C. I. Fisher.—p. 1164.

Vol. 154, March 27, 1954

* Conference on trichinosis.—1093.

Canning Corn. A new method of canning corn commercially has been developed which cuts down the processing time from 30 to 7 min. Through the use of rotary-type equipment during processing, a more rapid heat penetration is possible so that the holding time can be reduced. The usual processing for canned corn is 244°F. for 30 min. With the rotary-type equipment the processing is carried out at 270°F. for 7 min. Numerous studies have established that this high-temperature-short-time processing produces a better product and yet is adequate to



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Nutrition after Gastric Operations. Physicians responsible for the late post-operative care of patients with gastric surgery have long been impressed by the problems presented. Diminished appetite, limited food capacity, frequent discomfort after meals, high incidence of food idiosyncrasy, and occasional diarrhea may result in a significant weight loss or the inability to gain weight. A study of the post-operative weight trends in 203 patients showed a definite relationship to their pre-operative nutritional status. Therefore, to insure a good nutritional status after gastric surgery, an operative procedure suitable to the patient's pre-operative weight tendencies should be chosen, and close attention should be paid to the dietary management starting early in the post-operative period. To this end the use of seasoned, solid foods of minimal volume and low bulk and the avoidance of hypertonic fluids with meals have proved advantageous.

Improved Fertility. Many cases of functional infertility and abortion result from errors in sex hormone metabolism associated with variable degrees of nutritional and hepatic insufficiency. Therefore, a combined nutritional and hormonal regimen was applied in the management of 22 men and 50 women who were infertile. The diet included: optimal calories; 1.5 to 2 gm. protein per kilogram of body weight; 25,000 to 50,000 I.U. vitamin A; foods rich in B-complex vitamins, such as liver; 30 cc. rice bran extract; 60 to 90 gm. brewer's yeast flakes; and 30 to 60 gm. wheat germ extract. After thirty to sixty days on this regimen, sex hormones were prescribed. After an average of nine months, more than half of the women achieved normal, full-term pregnancies. Of the 17 men with moderately severe oligospermia, 15 had improved spermatogenesis followed by pregnancy in ten of their wives, one of whom aborted. Of the five men with severe oligospermia associated with testicular atrophy, only two showed some improvement in spermatogenesis without pregnancy in their wives. These favorable results are better than those of chance expectation or those obtained with nutritional or hormonal therapy alone.

Employment for Diabetics. It is emphasized that a patient with controlled diabetes is just as good an employment risk as the nondiabetic candidate. The diabetic person's effective contribution to industry has been demonstrated, and with continuing cooperative efforts among labor, employers, and professional groups toward hiring him, it is thought that employment prejudice will continue to abate. Nine standards for diabetic persons are suggested for both employers and prospective workers, some of which are: a diabetic person seeking employment should present a note from his physician stating that his diabetes is controlled and that he undergoes periodic examinations; diabetic persons can perform any work for which they are equipped physically, mentally, and educationally; and they should only work straight shifts.

Milk Protein Supplement. The properties and usefulness are described of a new dietary supplement (Kralex) of high-protein, low-sodium content for oral administration. The general and specific analyses are given in a table. In evaluating the availability of this supplement for human protein synthesis, five cases are presented in which it served as the principal source of protein for intervals of from two weeks to three months. The two patients with decreased serum proteins both showed elevation of the levels; two patients with a normal serum protein level maintained the same levels; and in one case characterized by decreased ability for protein synthesis, the amount of serum proteins was maintained and slightly increased. It is acknowledged that Kralex is not a balanced food. It was prepared for use only as a protein supplement, and fortification with lacking vitamin and mineral constituents was purposely omitted.

Trichinosis Conference. The second National Conference on Trichinosis brought together outstanding authorities on various phases of this subject. Since garbage is one of the chief means of transmitting the trichina larvae to hogs and rats, the sanitary disposal of it was considered at some length. Although garbage may be kept away from the animals altogether by various means, trichinosis can also be controlled if all garbage fed to hogs is boiled for 30 min. Another means of attacking trichinosis is treatment of the infected pork. A new method using gamma irradiation, which is not yet developed commercially, would increase the cost of pork by only ½ cent a pound. Other recommendations were made, such as making sure pork is cooked until well done before serving and having butchers use a separate grinder for pork.

JOURNAL OF CLINICAL INVESTIGATION

Vol. 33, March, 1954

* The renal excretion of inositol in normal and diabetic human beings. W. H. Daughaday and J. Larner.—p. 326.

Renal Excretion of Inositol. The urine of eleven non-diabetic subjects contained an average of 37 mg. inositol per day. Urine volume correlated poorly with inositol excretion. Seven uncontrolled diabetic patients had a urinary inositol excretion of from 280 to 851 mg. per day. The inosituria of diabetic patients disappeared after glycosuria was controlled. A small rise in the plasma level occurred following the ingestion of 3 gm. inositol in both diabetic and nondiabetic patients. The renal clearance of inositol in normal subjects at physiologic plasma levels of inositol was low. A 3000 per cent increase in inositol clearance occurred following glucose loading at normal plasma inositol levels. It is concluded that a renal tubular mechanism for the reabsorption of inositol exists and that tubular transport of inositol is inhibited by high glucose loads. The inosituria of diabetes mellitus can be attributed to an increased inositol clearance produced by glycosuria not polyuria.

THE JOURNAL OF HOME ECONOMICS

Vol. 46, April, 1954

* Iowa school lunch programs in schools with twelve grades. G. Augustine, M. McKinley, E. Emmons, and C. Rogers.—p. 245.
* Dry mix and frozen baked products.
  I. Dry mix and frozen cakes. P. Paul, O. M. Batcher, L. Fulde, and K. Gaffner.—p. 249.
  II. Dry mix and frozen muffins. P. Paul, O. M. Batcher, and K. Gaffner.—p. 253.

Iowa School Lunch Programs. Two studies in schools with twelve grades were made on the problems unique to school lunch management. The first study dealt with the contributions of commodities donated by the U. S. Department of Agriculture, and the second with cost and participation. Data for the two studies for the year 1951–1952 were obtained from eighty-three schools. Tabulations are given of the average-per-meal nutritive contribution of USDA-donated commodities compared to one-third of the daily recommended allowances; average receipts and costs per meal as well as estimated value of USDA-donated commodities. Average distribution of school lunch income and expenditures are also reported. Six recommendations are stated which, it is thought, would improve the school lunch program.

Dry Mix and Frozen Baked Products. A comparison was made of the preparation time, cost, and palatability of yellow and white cakes—fresh, frozen, and premixed. The fresh cakes had the thickest, lightest batters. However, the white cake made from a commercial mix was considered more palatable. Least palatable were the commercial mix for the yellow cake and the frozen batter for the white. For both yellow and white cakes, the commercial mix took the least time to make and the frozen-baked, the longest. The least expensive of the yellow cakes was the home-prepared mix, although it was the most expensive of the white cakes, the fresh white cake being the least expensive.

A similar study was conducted to compare frozen freshly prepared and frozen baked muffins and those made from home-prepared and commercial mixes. The muffins made from the commercial mix compared favorably with those made from fresh batter. Frozen muffins were similar to fresh-batter muffins until six months' storage. After that, palatability decreased. The freshly prepared muffins were least expensive, while those made from the home-prepared mix took least time.

JOURNAL OF NUTRITION

Vol. 52, February, 1954

* Effect of high environmental temperatures on metabolism. I. Growth and blood constituents of rats exposed to 94°F. for 72 hours. R. L. Squibb, M. A. Guzman, and N. S. Scrimshaw.—p. 155.
* Zinc metabolism of young college women on self-selected diets. H. M. Tribble and F. I. Scoular.—p. 209.

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Vol. 52, March, 1954

* Experimental dental caries. V. The effects of desalivation and castration on caries and fluorine storage in the rat. D. Bixler, J. C. Muhler, and W. G. Shafer.—p. 345.
* Essential fatty acids and human nutrition. I. Serum level for unsaturated fatty acids in healthy children. H. F. Wiese, R. H. Gibbs, and A. E. Hansen.—p. 355.
* Essential fatty acids and human nutrition. II. Serum level for unsaturated fatty acids in poorly-nourished infants and children. A. E. Hansen and H. F. Wiese.—p. 367.

High Temperatures and Metabolism. Rats were subjected to a temperature of 94°F. for 72 hr. and were then compared with controls, which had been kept at a temperature of 72°F. In one set of trials, the rats were fed *ad libitum*; in another, they were restricted to 5 gm. of feed. With *ad libitum* feeding, heat-treated rats consumed less than controls. They lost weight, and the levels of riboflavin, vitamin A, ascorbic acid, and alkaline phosphatase in their blood sera were significantly depressed, whereas the levels of total protein were significantly elevated. With restricted feeding, both control and heat-treated rats lost weight, and in the heat-treated rats only the vitamin A and ascorbic acid levels were significantly depressed. The exposure to high temperature had no effect on total carotenoid levels in either the *ad libitum* or feed-restricted groups. These results suggest the need for further study of the effect of climatic stress on metabolism of serum proteins, vitamin A, and ascorbic acid in animals in desert and tropical climates.

Zinc Metabolism of College Women. A study was made of the zinc metabolism of thirteen college women consuming self-selected diets. Servings of each food from each meal were collected and a record kept of the amount of milk consumed by each girl. Aliquots of both food and feces were obtained for analysis after being weighed and macerated in the Waring Blendor. Aliquots were removed from the 24-hr. urine collections. An average of 8 per cent of the ingested zinc was excreted in the urine and 42 per cent in the feces. As compared to younger children, it appears that college women excrete a larger percentage of ingested zinc in the urine and a smaller per cent in the feces, with retentions higher in proportion to the level of zinc ingested. However, all of the subjects in this study were in positive zinc balance and retained an average of 6.6 mg per day.

Experimental Dental Caries. The effects of desalivation and castration on dental caries and the storage of fluorine in the skeletal system are reported. Desalivation resulted in a marked increase in the incidence and severity of dental caries. Castration, on the other hand, in both sexes reduced caries development significantly. A sex difference in the storage of fluorine was noted, with females storing higher amounts. Fluorine storage under *ad libitum* feeding conditions indicated less fluorine in both males and females in the skeletons of the desalivated, castrated, or combined desalivated-castrated groups. Under paired-feeding conditions, however, the differences in fluorine storage between the desalivated and control groups disappeared. Fluorine storage in desalivated animals appears to be related to body growth and food ingestion in both males and females, but the fluorine storage data for a castrated and for a combined desalivated-castrated female group indicated that additional information is needed.

Serum Unsaturated Fatty Acids in Healthy Children. The blood serum levels of dienoic, trienoic, tetraenoic, and hexaenoic acids were determined on ninety-three well-nourished infants and children. The serum levels for two, three, and four double-bond fatty acids were in the same range for both well-nourished hospitalized children and healthy non-hospitalized children. There appeared to be a slightly lower level of dienoic and tetraenoic acids in the serum of infants than in children two to fifteen years of age. The serum trienoic acid for healthy children was relatively low. On a dietary intake in which linoleic acid comprised about 3 per cent of the total calories and only trace amounts of the arachidonic acid were supplied, relatively high serum levels of tetraenoic acid were maintained. On the basis of these blood levels, the data indicate that there is no dietary requirement for arachidonic acid for healthy children when linoleic acid is supplied. Minimum dietary requirement for linoleic acid to maintain normal blood levels for healthy children is yet to be determined. The hexaenoic acid content of the serum of healthy children showed wide variations.

Serum Unsaturated Fatty Acids in Poorly Nourished Children. The blood serum levels for the total fatty acids, dienoic, trienoic, tetraenoic, and hexaenoic acids, were determined on fifty-seven poorly nourished infants and children. There were no significant differences in the amount of the total fatty acids in serum of children in fair and poor nutritional states as compared with well nourished children. However, dienoic, tetraenoic, and hexaenoic acid levels in the serum of inadequately nourished children were significantly lower than in healthy children and levels of trienoic acid were significantly higher. Thus, it would seem that the total amount of fatty acid in blood serum is not a valid indication of nutritional status, although measurement of the individual acids may be indicative, and the unsaturated fatty acids may be considered essential for the well-being of healthy children. In children under four years of age, the serum levels of dienoic or linoleic acid were higher in well nourished children than in those who were fairly well nourished or malnourished. Absorption data also indicated the presence of a small amount of pentenoic acid in the serum of all children.

JOURNAL OF PEDIATRICS

Vol. 44, March, 1954

* Grape juice in infant feeding. Comparative sensitivity to orange and grape. A. J. Vignec and S. Weinberg.—p. 294.

Grape Juice in Infant Feeding. Grape juice was acceptable as a daily routine for periods ranging from one week to three months in 97.6 per cent of 365 infants tested. None of the infants showed any allergic manifestations. Three hundred seventy-nine infants and children were tested intradermally with 1:1000 and 1:500 dilutions of grape and orange. Only eighteen cases (4.7 per cent) gave positive reactions to grape. Twenty-three children (6 per cent) gave positive reactions to orange. There was no correlation between positive intradermal reactions and positive clinical reactions. Under the conditions of this investigation, positive clinical findings are a more significant index of sensitivity than positive intradermal reactions. Grape juice was found to be a highly convenient vehicle for administering poorly accepted medications.

THE LANCET

No. 6810, March 6, 1954

* Oral treatment of pernicious anaemia. C. P. Lowther, W. D. Alexander, and E. B. Hendry.—p. 495.

Oral Treatment of Pernicious Anemia. Twenty cases of pernicious anemia in remission and satisfactorily controlled were transferred to treatment with "Bifacton," an oral preparation containing vitamin B_{12} and intrinsic factor. No evidence of hematologic or neurologic relapse was seen after six months' continuous treatment.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 250, March 4, 1954

* Management of the ambulatory diabetic patient. J. W. Runyan, Jr. and D. Hurwitz.—p. 361.

Ambulatory Diabetic Patients. The obese patient is the most frequently encountered type of diabetic. Characteristically, the diabetes is relatively stable, and insulin reactions and acidosis seldom occur. Dietary patterns in the obese patient generally need altering. Diets varying from 1200 to 1800 calories are usually prescribed. However, too drastic restriction in food intake may result in the discouragement and a possible total disregard of the diet. For example, patients engaged in heavy labor, whose food intake has been 4000 to 6000 calories, can lose weight on a diet of 2000 to 2600 calories. By prescribing realistically and maintaining an interest in the patient and his problems, weight reduction can be achieved. Then, the persistent problem—the maintenance of weight reduction—follows. The obese patient with symptoms of diabetes is started on 10 to 20 units of NPH insulin initially. Increases of 5 to 10 units every two to seven days are made until adequate control has been accomplished. If weight is reduced, insulin can often be discontinued after several months. The diabetic patient in any age group who is underweight and malnourished as a result of uncontrolled disease, previous drastic dietary restrictions or other circumstances, needs a food intake sufficient to restore his weight to normal. Nourishment between meals, in addition to full meals, is indi-

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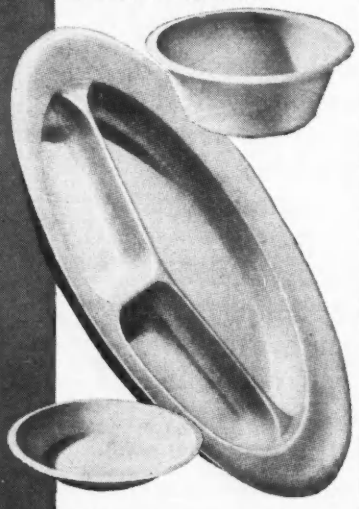

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cated. The total calories prescribed may be from 3000 to 3600. Insulin is invariably needed under such circumstances. Medical, psychologic, and economic considerations are preferable to routine hospitalization of the patient with uncontrolled disease.

NUTRITION REVIEWS

Vol. 12, March, 1954

- Early experiences with pantothenic acid—a retrospect. R. J. Williams.—p. 65.
- Sodium toxicity in potassium deficiency.—p. 75.
- Metabolic influences on tooth development during pregnancy.—p. 78.
- Dietary protein and reproduction in rats.—p. 90.

Vol. 12, April, 1954

- Early experiences with riboflavin—a retrospect. P. Gyorgy.—p. 97.
- Effect of insecticides on food quality.—p. 109.
- Choice of diet by rats.—p. 117.
- Ascorbic acid and ACTH in experimental wounds. —p. 124.

Pantothenic Acid History. The author tells of his early experiences with the biologic effects of pantothenic acid in 1918 down to the present time. During his first experiments he discovered that if a little decoction of yeast was added to single yeast cells, they would grow to clusters; and if a substantial amount of decoction was added, the hanging droplets would be filled with thousands of yeast cells. This led to the conclusion that the stimulating substance appeared to be "vitamin B"; and while several of the B-vitamins no doubt contributed to the growth of old process yeast, the one outstanding constituent was pantothenic acid. Eventually a strain of yeast was found which would respond well to pantothenic acid as the only addendum. Using this strain yeast as a test organism, the substance was finally isolated in substantially pure form.

Sodium Toxicity in Potassium Deficiency. Four experiments were performed to provide further evidence that sodium functions as a "toxic" ion in the presence of potassium deficiency. The results of these experiments showed that myocardial lesions will develop in the presence of potassium depletion. These, however, may be fairly insignificant if sodium is also depleted. On the other hand, in the presence of added sodium in potassium-deficient animals, such lesions become more severe and may become lethal. It was noted that the cardiac lesions of potassium deficiency alone were loss of muscle fibers with cellular replacement while those in animals given a low-potassium, high-sodium diet showed hyaline or coagulative necrosis without cellular infiltration.

Dietary Protein and Reproduction. The influence of dietary protein on reproduction in rats has been reinvestigated and observations have been made on the influence of B-vitamins and caloric intake under conditions of low-protein intake. No macroscopic congenital abnormalities were observed in any of the young from females receiving the low-protein or protein-free diets. However, it is pointed out that the effects of protein deficiency on reproduction show similarities to the effects of pyridoxine deficiency. It was further noted that the rapidity with which the low-protein and protein-free diets disturbed reproduction was greater than that observed for any vitamin deficiency imposed upon the female rat in reproduction.

Tooth Development During Pregnancy. Investigations were made to explore the existence of etiologic factors related to tooth development which are not considered to be limited by the selective ability of the placental barrier. These studies suggest that there is a definite possibility that the injurious effect on the teeth of the offspring may be mediated by some endocrine or general metabolic pathway rather than by direct placental transfer of infection. The responses noted to the febrile conditions which were artificially produced were particularly interesting by reason of the frequent febrile reactions which are observed in a wide variety of infectious disturbances.

Early Experiences with Riboflavin. The discovery of riboflavin may be considered as a scientific windfall. It opened the way to the unraveling of the truly complex vitamin B_2-complex and bridged the gap between an essential constituent and cell enzymes and cellular metabolism. About twenty-five years ago, the vitamin B complex was thought to consist of two separate components: vitamin B_1, the antineuritic factor; and vitamin B_2, the antipellagra factor. Chemical experiments were conducted to isolate the active factor. It was noted that all the concentrates which proved to be active in the animal assays were colored with an intensity in direct proportion to their biologic effect. By exposing clear, colored concentrates to complementary wave lengths of visible light, it was established that exposure destroyed the vitamin B_2 activity of these concentrates. The isolation and identification of the colored component of this B_2-complex were readily achieved, first from milk, then from egg white and liver. It was finally given the name of riboflavin. Through further experimentation, it was possible to link riboflavin with specific enzymes and enzymatic activity in the living organism.

Effect of Insecticides on Food Quality. A problem that has arisen when crops are dusted or sprayed for insect control is the possible deleterious contamination of the next succeeding crop grown on the same land, due to the accumulation of insecticide residues. It was reported that serious off-flavors could result in the peanut butter made from peanuts which were grown following cotton crops that had been dusted with benzene hexachloride. When this chemical is added directly to the peanut oil, it is not as objectionable as when found in the peanut butter at much lower concentrations which were due to absorption from the soil. This complicated problem may have serious consequences in certain cases of crop rotations. The use of toxaphene for control of insects which damage alfalfa was investigated under arid climate conditions to determine the amounts of this insecticide that may appear in the milk and tissues of cows which were fed the treated alfalfa. Rather rapid elimination of toxaphene via milk secretion was indi-

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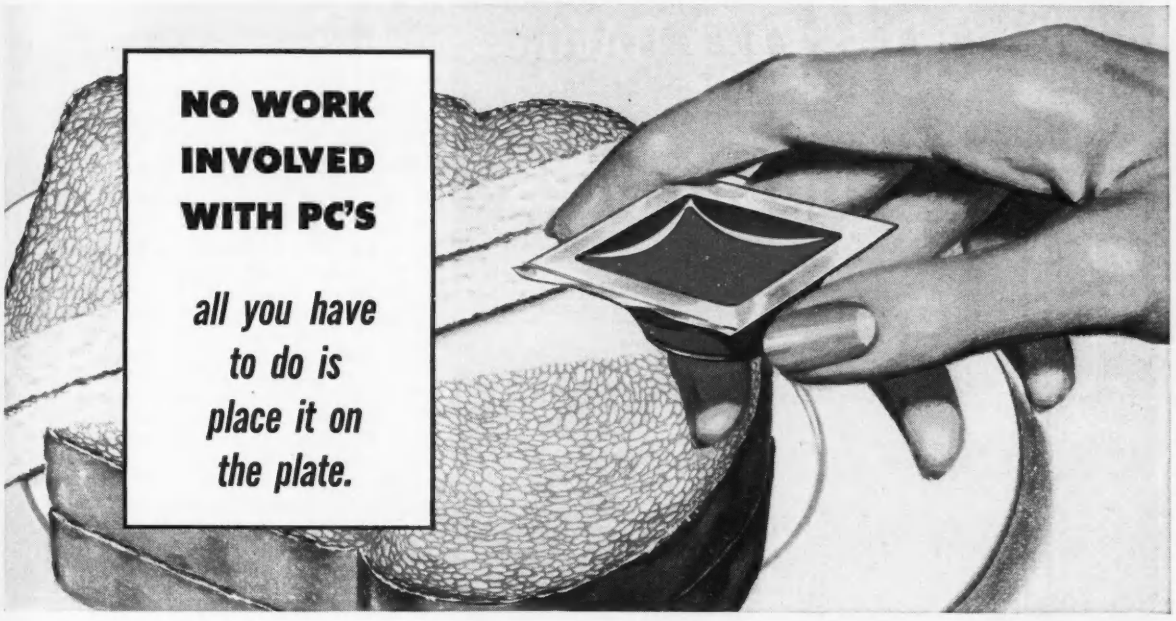

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cated, but analysis of liver, muscle, kidney, and kidney fat showed considerable toxaphene concentration in the kidney fat from cows fed hay which had been treated at rates of 2 and 4 lb. per acre. The other tissues contained no toxaphene.

Choice of Diet by Rats. Recently, some British workers have reinvestigated the choice of diets by rats deficient in B-complex vitamins in an effort to establish whether such animals possess an ability to develop appetites commensurate with good nutrition. The experiment was designed to find out if normal and deficient rats would select the adequate diet when offered a choice of two diets identical in all respects except for the B-complex content. It was found that even normal rats possess a preference for the diet supplemented with B-vitamins, although the preference was not as great as that shown by the B-vitamin-deficient animals. Further investigations showed, however, that even though B-vitamin-deficient rats possess a definite appetite for B-vitamins, they do not possess the uniform ability to select diets most conducive to optimal nutrition.

Ascorbic Acid and ACTH in Wounds. Conflicting results have been reported by two groups studying the effect of ascorbic acid and ACTH in wound healing. Experiments were carried out on guinea pigs. Schilling and his associates found no evidence of beneficial effects on wound healing of 10 to 50 mg. daily of supplemental ascorbic acid over that provided by the standard "adequate" diet. Pirani's group, however, observed that the wounds of guinea pigs receiving 25 mg. ascorbic acid daily healed better than those of animals receiving 2.5 mg. (their "normal" intake) daily. Likewise, Pirani observed a detrimental effect of ACTH on wound healing in guinea pigs on a "normal" intake of ascorbic acid, while Schilling did not. However, it is not clear whether the normal control animals in the latter study received about the same amount of ascorbic acid daily as the comparable group in the Pirani investigation. Also, different types of wounds were used in the two studies. Both groups interpret their findings as indicating that the role of ascorbic acid in wound healing is a direct one and not mediated through the adrenal cortex.

FOR BEST coffee FLAVOR
USE CORRECT temperatures
PROPER USE of the *Robertshaw* Heat Control on your coffee urn or coffee maker assures flavor control because it accurately regulates both brewing time and holding temperature. You thus cut coffee-making costs while delivering to your patrons a day-in, day-out uniformity of flavor and quality.
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PUBLIC HEALTH REPORTS

Vol. 69, March, 1954

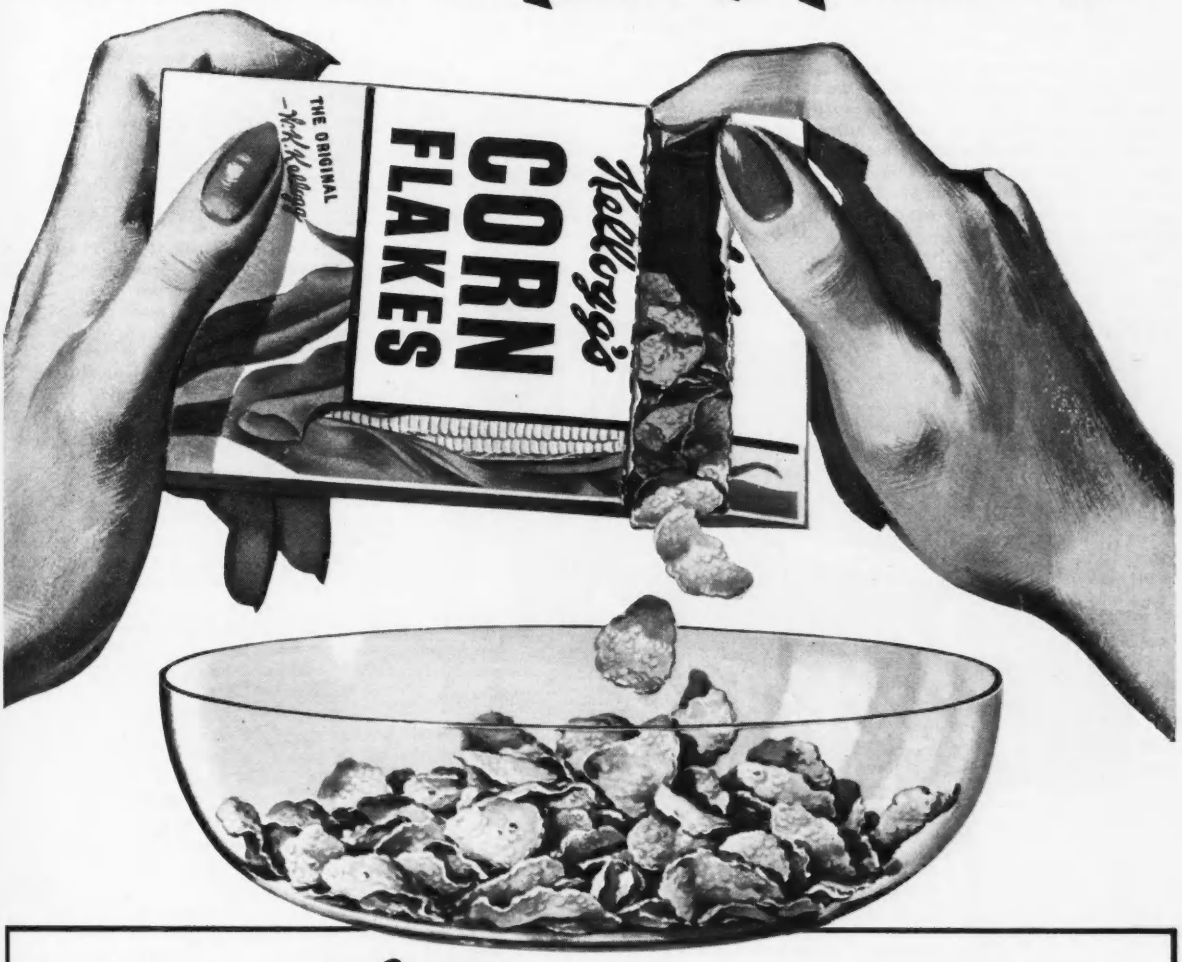
* The addition of specific nutrients to foods.—p. 275.
* Nutrition in the Americas.
Developing modern nutrition programs. W. H. Sebrell, Jr.—p. 277.
Endemic goiter in Latin America. N. S. Scrimshaw.—p. 282.
Reports from the Americas on nutrition programs. —p. 284.

Addition of Nutrients to Foods. The Food and Nutrition Board and the Council on Foods and Nutrition, in the light of experience and new developments, have issued statements of policy in regard to the addition of specific nutrients to foods. These policies include specific requirements for endorsement of the addition of a particular nutrient to a particular food; the desirability of meeting the nutritional needs of the people by the use of natural foods as far as practicable; adding nutrients to foods which have suffered loss in refining or other processing which are the kinds and quantities native to the class of food involved; and the reaffirmed endorsement of certain staples.

Developing Modern Nutrition Programs. Although there have been many advances in nutrition programs throughout the world, there is still much left to be desired. In some areas there is gross starvation, demanding such measures as emergency feeding, economic support and adjustment, and revision of agricultural practices. Dangerous deficiencies of particular nutrients are also prevalent. Such deficiencies are common, even in regions where calories are adequate. Thus, nutrition surveys are widely required to indicate the specific treatment needed. A permanent program with a long-range view is essential if advances are to be sustained. Changing needs should be anticipated, and these will include the nutritional problems of chronic disease. From the beginning, education of the public in an effort to establish correct dietary patterns should be prominent.

Goiter in Latin America. Although the problem of endemic goiter in Latin America is more widely recognized than ever before, and present technical knowledge is sufficient to insure the elimina-

GIVE EVERYONE A BREAK FOR BREAKFAST



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All Kellogg's cereals have that delicious, can't-be-copied flavor—come in eleven different varieties—nutritious because they're either made from whole grain or have the important whole grain values *restored.*

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Kellogg's cereals are oven-fresh—sanitary, too. They make a hit in the kitchen because they save meal planning and preparing.

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Kellogg's cereals in "Individual" packages are perfect for the budget-watcher concerned with portion control. And because they're *Individually* packaged, Kellogg's cereals cost less because they eliminate waste.

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40% BRAN FLAKES • ALL-BRAN • SHREDDED WHEAT • CORN SOYA
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tion of goiter as a public health problem, few specific additional measures have been taken toward this goal since the Rio de Janeiro conference in 1950. Since endemic goiter can always be prevented by providing the amount of iodine needed, the iodization of salt is almost universally recommended as the prophylactic method of choice. However, tropical temperatures, excessive moisture, economic factors, or local customs have made the iodization of salt with potassium iodide unacceptable for many areas of Latin America. Therefore, the demonstration that iodine of potassium iodate is effective in treatment of human goiter is of considerable practical significance.

Nutrition Programs in the Americas. A summary of the replies to a questionnaire on nutrition programs in the various countries of the Americas is presented. Endemic goiter and kwashiorkor and measures taken by the different countries to prevent them are reported. Considerable progress has been made in the planning and execution of dietary surveys, and physical examinations giving special emphasis to signs and symptoms possibly related to nutritional deficiency have been carried out in all but two of the countries of continental America. Reports are presented from laboratory studies in ten countries and food analyses in thirteen. Facts about the various types of nutrition education, dietary supplementation, and training of personnel in nutrition are given.

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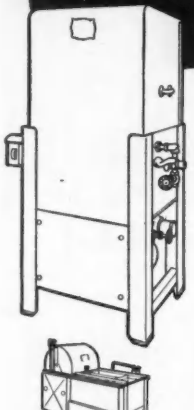

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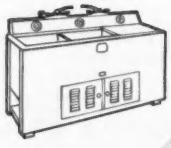

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PSYCHOSOMATIC MEDICINE

Vol. 16, January–February, 1954

Some psychosomatic aspects of food allergy. W. Kaufman.—p. 10.

SOUTHERN MEDICAL JOURNAL

Vol. 47, April, 1954

* Late treatment of severe extensive burns. T. G. Blocker, Jr., C. C. Snyder, and S. R. Lewis.—p. 371.

Severe Extensive Burns. Anemia, following burns, is often masked in the early days after injury because of greater relative loss of plasma and a deceptively high hematocrit reading. Loss of red cells from destruction at the burn site and from increased fragility may, however, be as severe as from a major hemorrhage, and bleeding occurs each time adherent gauze is pulled away from the wound. Transfusions of whole blood should always be available at the time of surgery and should be given during the entire convalescent period if indicated. Hemoglobin protein should have priority over plasma protein, and anemia must be corrected before the serum protein level can be restored to normal. In patients with burns of major extent, forced feeding of protein concentrates at the end of the first week is begun. In milder cases, supplementary oral drinks of Protenum, Provmalt, or Gevral with milk to provide about 135 gm. protein daily in addition to the house diet are given. In the more severe cases, patients receive forced feedings of whole protein mixtures by intragastric drip, beginning with about 2 gm. per kilogram and working up to 4 to 6 gm., according to the individual level of tolerance. Fat content of the formula is supplied by Ediol or Lipomul. With such a high-protein intake, spectacular weight gain may occur at times, even before all skin grafting has been completed. In addition to the high-protein, high-caloric diet, large amounts (up to 1000 mg. daily) of supplementary vitamins are given, particularly those of the B-complex. At the end of the first week, oral potassium chloride is given daily if renal function is satisfactory.

AMERICAN RESTAURANT MAGAZINE

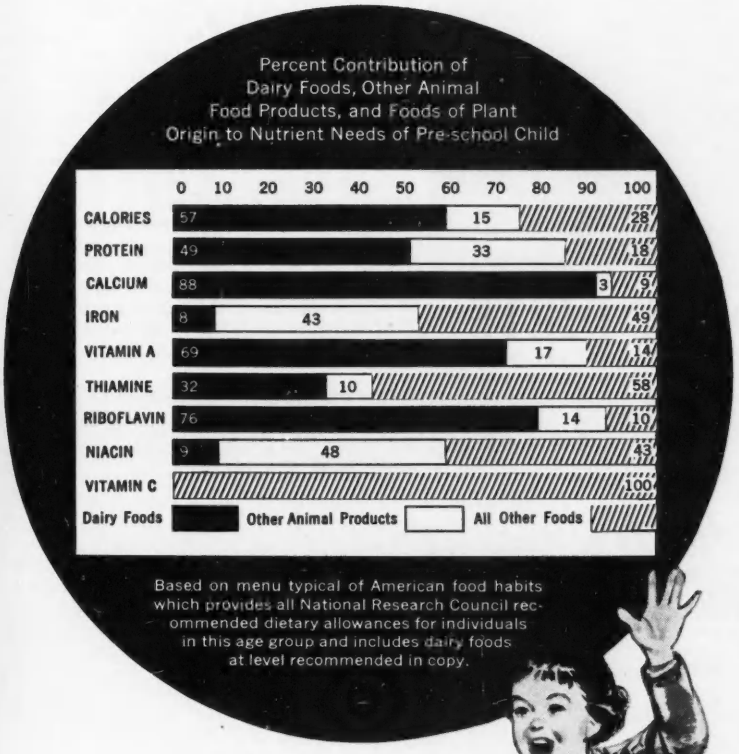
Vol. 38, April, 1954

* That new employee and how to help her like her work. J. B. O'Meara.—p. 44.

Simple foods for springtime meals. L. D. Freeman.—p. 106.

[**New Employees.** Measures to prevent employee turnover are discussed in this article. It is pointed out that the high mortality rate among new employees is usually caused by the poor reception they receive on joining an organization and the lack of an orientation program. To reduce this loss, the author emphasizes that conditions which promote longevity of employment must exist before an employee comes to work. These must be an *esprit de corps* among the other employees; their attitudes of friendly cooperation, harmony, cheerful-

...with an eye to the "BUGGY 'N BIKE" set!


Percent Contribution of
Dairy Foods, Other Animal
Food Products, and Foods of Plant
Origin to Nutrient Needs of Pre-school Child
0 10 20 30 40 50 60 70 80 90 100
CALORIES 57 15 28
PROTEIN 49 33 18
CALCIUM 88 3 9
IRON 8 43 49
VITAMIN A 69 17 14
THIAMINE 32 10 58
RIBOFLAVIN 76 14 10
NIACIN 9 48 43
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Dairy Foods
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All Other Foods
Based on menu typical of American food habits which provides all National Research Council recommended dietary allowances for individuals in this age group and includes dairy foods at level recommended in copy.

The presence of this seal indicates that all nutrition statements in the advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

Learning to ride a bike or pushing a doll buggy around the block are part of the pre-schoolers' big job of growing up—so is learning to eat a variety of foods, to meet the nutrient needs of growth and to establish good eating habits for a healthy life.

Protein is essential for the child's developing muscle, and for growth of bone as well. Milk and milk products are the primary source of protein in the diet of young children.[1] Eggs, meat, fish and poultry are also sources of high quality protein and should be included in the child's diet.

Calcium, phosphorus, and vitamin D are required for the normal calcification of bones and teeth, a continuous process during growth . . . even during the period of slow linear growth. One quart of vitamin D fortified milk per day will provide adequate quantities of these nutrients during pre-school years.[1]

Iron, copper, and certain other minerals are needed for red blood cell formation and as catalysts in various enzyme systems. These nutrients are provided by eggs, meats, fish, fruits, vegetables, and whole grain or enriched cereals.

All the essential vitamins must be provided for the formation and functioning of normal body tissues. Milk and milk products are the main source of *riboflavin* and of pre-formed *vitamin A* in children's diets . . . and provide some of all the other known vitamins.

Whole grain or enriched cereals and legumes supplement dairy foods and meats as sources of the *B-vitamins*. Citrus fruits, tomatoes, and other fruits and vegetables are needed as a source of vitamin C . . . and provide liberal amounts of vitamin A as well.

Energy for growth and activity is provided by all foods. More than 85 per cent of the necessary calories come from fats and carbohydrates,[2] both of which are needed for adequate nutrition of the young child.[1] Butterfat is an excellent and dependable dietary fat for children of this age group.

Approximately one quart of milk, or its equivalent in other dairy foods—cheese, ice cream and butter—is recommended for inclusion in the diet of the normal young child every day.

[1]Jeans, P. C. Feeding of healthy infants and children. J. Am. Med. Assn. *142*: 807 (March) 1950.

[2]*The National Food Situation*, NFS—60 U.S. Department of Agriculture, Washington, D. C., (April-June) 1952.

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Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.

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In Individual Envelopes
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FOR LOW CALORIE DIETS

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DIETETIC SCALE

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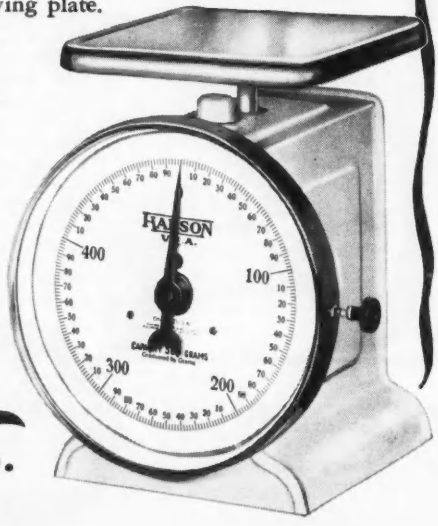
Capacity 500 grams by grams. Stainless steel platform, white enamel body, easy to keep clean.

Model 1411 (illustrated) has glass protected dial, price $15.00

Model 1440 enamel dial, price $10.00

See your Supply House



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ness, and pride in the organization will be conveyed to the new worker with little trouble. Likewise, when poor morale exists, the new employee is quick to sense it. By the same token, to attract and hold top flight people, a top flight organization and a good attitude on the part of the owner or manager is essential. When a new employee is expected, preparations for his arrival should be made. Is the locker he or she will use clean and in good order? What about his uniform? The new employee, regardless of how much previous experience he has had, should not be put on the job without a training period with a co-worker. In some restaurants a "buddy" or "sponsor" system is used in training new employees. Although it requires much time at first, the results pay dividends. The experience of one restaurant with this plan is described. In another restaurant, supervisors are given a written outline of the training program to be followed with a new employee This outline is presented.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 16, April, 1954

* Ideas that boost food sales. M. Tiernan.—p. 48.

Increasing College Food Sales. At the Student Union Building of the University of Washington, Seattle, an aggressive program of merchandising and advertising is conducted to increase volume of food sales. Advertising is carried in the campus periodicals. Displays, tied in with campus or seasonal events, are arranged outside the entrance to the cafeteria and coffee shop. One display even utilized the time-proved advertising technique of motion; a grass-skirted Hawaiian hula dancer "lured" students to a pineapple sundae; decorations on the backbar followed up the theme. Feature items are maintained, i.e., a 5-cent mug of root beer, a "3-D" (triple dipped) ice cream cone, and "Huskyburger" (hamburgers named after the campus mascot "Husky"). Other forms of promotion and advertising which are used are discussed.

FOOD SERVICE

Vol. 16, March, 1954

* Is sanitation worth what it costs?—p. 22.
* Sterilize 1250 dishes for 10¢.—p. 54.

Sanitation Costs. "Cleanliness is cheaper than dirt." This fact and statement have been made possible by our present-day mechanization and education. Customers judge restaurants on their cleanliness. In fact, in a recent survey, cleanliness rated second to good food and was followed by service in determining where the public would dine. Sanitation can be divided into two classifications: equipment and people. The need to train food handlers in sanitary practices was pointed out. The equipment may be spotless, but the employee must understand its operation. Dishwashing with a prerinsing operation is recommended.

Sterilizing Dishes. State codes specify that the final rinse water in dish-

Food buying simplified!

Smart dietitians don't guess! They plan their meals around Armour products because they know they can depend on Armour quality. They know that regardless of what they need – from meats to shortening – a single call to Armour will bring specialized service and prompt delivery on this wide variety of products. Next time *you* order, see how your Armour salesman can help you!

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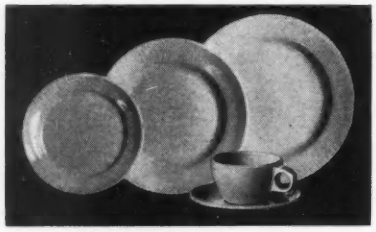
More than 1000 schools and hospitals all over the country are getting better service at greater savings with this line. How about you?



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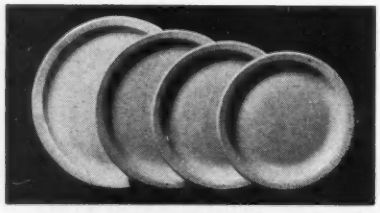
Heavy duty dinnerware of non-chipping Melamine plastic in beautiful pastel colors. Wide rim design.



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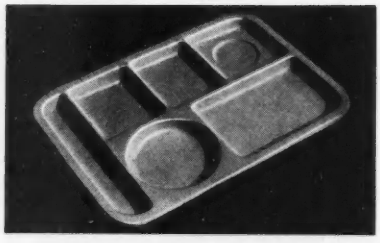
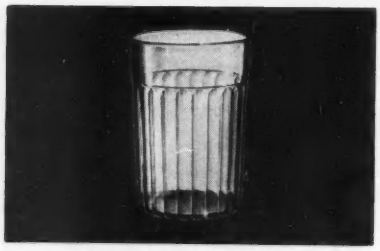


ARROWHEAD CAFETERIA TRAYS
Plate and tray all in one. Easy to wash. Easy to stack. Space-saver, labor-saver, money-saver. Won't break!



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Shatterproof! Safe in automatic dishwashers. Won't chip! 4 sizes: 12-oz.; 10-oz.; 8-oz.; 5-oz.

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washing must be from 170° to 180°F. In order to comply with the law, a booster heater may be necessary to avoid dangerous accidents. Two kinds of booster heaters are available: the storage type and immediate recovery type. The former involves a storage tank, with heating elements that are thermostatically controlled. Water from a regular heating tank (approximately 140°F.) is mixed with 180°F. water in the tank. The water temperature is only lowered slightly, and as a result, smaller heating elements can be used. The immediate recovery type of booster has small vessels of varying size carrying larger elements. Points to check on the booster heater are: (a) operating pressure, (b) incoming water temperature, and (c) liming and condition of the water.

FORECAST FOR HOME ECONOMICS

Vol. 70, March, 1954

* Glamorize the lunch box. G. Lam.—p. 10.

Cabinet conveniences. B. Mabry.—p. 44.

Glamorizing the Lunch Box. The lunch box which fills the need for many workers and pupils need not be monotonous. With a little planning of the contents and perhaps glamorizing the container, the lunch box can be enticing. A lunch box recipe file may include types of breads, tasty sandwich fillings, usual and unusual drinks (both hot and cold), and amusing favors as well as a number of "topper-offers" either sweets or nuts.

HOSPITALS

Vol. 28, April, 1954

* Cost accounting is not a statistical straightjacket. G. A. Killenberg.—p. 115.

Cost Accounting. Food cost accounting should shed sufficient light on the dietary department's operations so that they can be effectively studied by the dietitian. And, to be truly helpful, accounting must shed light *each day* on current performance. However, before effective accounting controls can be achieved, effective administrative controls of purchasing, receiving and issuing, storage, food preparation, and service procedures must be in operation. The author emphasizes the need for efficient receiving and issuing procedures. Food deliveries should be checked both as to weight and quality against purchasing specifications. Scales should be used in weighing in deliveries, and care should be taken that such weighing is accurate. Often fish received in boxes is weighed with the ice, which, of course, results in an inaccurate report. Likewise, various types of meats may be included in one container. If the receiving clerk records only the total pounds received, without breaking his report down as to type of meat, a misleading report results. Storage, too, must be controlled. Accounting control will be valueless unless the merchandise ultimately goes into production. Thus, an accurate record of discarded, spoiled merchandise should be maintained, but it is more important to guard against spoilage. A simplified, but effective cost accounting system can be worked out, using only a few records. A clerical worker can total all purchases sent directly to the kitchen, and then add the value of issues from the storeroom. This total cost, divided by an accurate number of meals served yields the daily raw food cost per meal. The dietitian need not and should not spend time developing facts and figures that could be recorded by a clerk. She has a right to expect that daily food costs and daily payroll cost will be prepared for her.

HOSPITAL MANAGEMENT

Vol. 77, April, 1954

* Insist on best equipment budget allows. F. W. Prendergast.—p. 90.

Equipment and Kitchen Planning. For long-time, efficient operation, careful and meticulous planning is needed in any kitchen installation, and after the contract for construction work is let, the finest equipment your budget will allow should be purchased. If the budget is not large enough for a quality installation, the author—a kitchen engineer—recommends waiting until more funds are available. In planning the layout and construction, he points out the need for consideration of *all* factors. For instance, the outside measurements of a walk-in refrigerator may be misleading; the inside dimensions determine the actual space available for storage. An island arrangement of cooking units, is favored, with gas or electric equipment placed to back up steam units, such as vegetable steamers, steam-jacketed kettles, cereal cookers, and so on. In such an arrangement, however, the matters of floor drains and ventilation must not be overlooked. Then, in considering each item, more details must be given attention: the lighting inside the interior of a ventilating hood is important, as well as a fire prevention unit of carbon dioxide. A water source over the cooking ranges cuts down steps in filling stock pots and other utensils. Placement of equipment in relation to windows or other outside openings is a factor to be considered. Other points, vital to good planning which will result in good operation, are also discussed.

THE HOTEL MONTHLY

Vol. 62, April, 1954

* Having cooking trouble during rush hours?—p. 54.

Meat for Stews. To flatten out the rush curve during peak periods and reduce labor costs and the number of prepared-to-order dishes, stews are suggested as menu items. Not only are recipes and suggestions for variations of stews given, but also tips on buying meat to be used in stews and six basic rules for preparing delectable stews from the American Meat Institute.

INSTITUTIONAL FEEDING AND HOUSING

Vol. 2, April, 1954

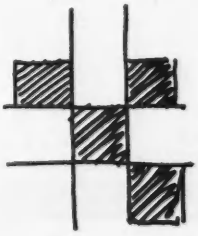
* Good coffee builds business.—p. FH8.
* How to use herbs and spices.—p. BR11.

From the desk of
R. A. SUTTER, M. D.

Make Sure
THE READY-TO-EAT
cereal is

WHEAT CHEX
It's Whole Wheat!

Delicious!
— Like it myself



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Bright, cheerful surroundings do much in speeding a patient's recovery. Holiday and Sunday paper tray appointments, through their lively and colorful designs, lift patients' morale. More sanitary service, too, with a clean, new tray cover for each serving.

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Regardless of cut or grade, Adolph's guarantees tenderness, less shrinkage—cooking time, and improves flavor. Reduce meat budget by changing cooking methods of less expensive cuts.

Adolph's MEAT TENDERIZER

For FREE SAMPLES write: Dept. DA
ADOLPH'S FOOD PRODUCTS, L.A. 46, Calif.

* How to serve forty people with six pounds of meat.—p. BR14.

Good Coffee. Instructions for preparing coffee by the urn brewing method and in vacuum-type coffee makers are given. In addition, a ten-step procedure for cleaning and care of urns is enumerated. Proper procedure for preparing iced coffee is also discussed.

Herbs and Spices. When subtly used, herbs and spices can effectively enhance flavors, but they should be used sparingly. Escoffier believed that the flavor of herbs and spices should never be recognized individually, but should blend and bring out the flavor of the food with which they are used. In this artic'e are presented: eight tips on the use of herbs and spices, a tabular list of seventeen common herbs and spices and their uses, and five recipes.

Meat-Saving Recipes. Two recipes using 6 lb. of meat which will serve forty people are features of this section on recipes. Other menu items presented include salads, desserts, and meat-extender recipes.

INSTITUTIONS

Vol. 34, April, 1954

* The challenge of perfection. S. Hartt.—p. 13.
* What goes into good management? A. M. Macfarlane.—p. 26.
* Outlines procedure for planning special function food service. A. N. Coventry.—p. 36.
* Something new for something old.—p. 43.
* How to keep your workers happy. T. Elliott.—p. 48.
* How to select sanitizing equipment. J. R. Myers.—p. 127.
* Tractor speeds food for specialized service.—p. 134.
* Plumbing, back doors set clean tables. R. R. Marsh.—p. 142.
* Mechanics of standardizing quantity recipes. M. K. Cranmore.—p. 166.

Hospital Food Service. In this, the first of a series on hospital food service, the author characterizes this type of operation, pointing out the problems and situations peculiar to the hospital field. Some similarities to other types of food service are also mentioned.

Good Management. Management policies of the food service of a famous Canadian department store are described. Being what is believed to be the first Canadian commercial organization to employ a dietitian in 1923, the organization has been "time and motion" conscious ever since. In its main store, a series of four customer restaurants and four employee dining rooms are operated. Capacities for these rooms range from 60 to 700. Although the expansive layout of the store requires separate kitchens for the majority of the food units, wherever possible, food production is centralized. The kitchen which serves the "de luxe" customer's dining room was planned so carefully twenty-one years ago that, although some pieces of equipment have been replaced from time to time for modernization, the layout has remained unchanged because of its efficiency. With the help of a work force which is conscious of a "better and best" way to do things, custom-made gadgets have been designed to speed specific tasks, such as grating lemon rind; dicing, slicing, and mincing fruit and vegetables; and peeling and coring apples. Specific instructions for use of equipment are posted close to the machines to which they apply.

Planning for Special Functions. The administrative details of catering to parties and special functions are discussed.

Wild Rice Cost Comes Down. A grading method for wild rice now makes it possible for food service operators who must consider portion cost to include wild rice dishes on their menus. A grading system developed since World War II makes it possible to separate the harvested wild rice according to size, color, and freedom from broken grain and foreign matter, and it is available in graded packages and even pre-cooked in cans. The low cost wild rice differs from the fanciest only in the fact that the grains are smaller and some are broken. Specially designed machinery now parches and grades the wild rice in an assembly-line fashion. This process balances somewhat the extremely high expense of hand harvesting by two Indians in a boat, who can average only about 100 lb. a day. The article closes with suggestions for entrée combinations using wild rice, such as green peppers stuffed with wild rice and diced chicken, mushroom and wild rice casserole, fried wild rice with almonds, and baked wild rice with oysters.

Worker Morale. Responsibility of management for policy making and establishing standards, defining objectives, fixing responsibility and authority, are discussed in relation to the performance of the work force and training of employees. When management has done its job, then the actual responsibility for training employees falls to supervisors. The author points out that employee problems cannot all be diagnosed as "training problems," that many stem from management's failure to meet its responsibilities in this area. The atmosphere of good employee morale which management should seek to create is defined by listing twelve "essentials."

Purchasing Dishwashers. Single-tank dishwashing machines are discussed in this article. There are two kinds of single-tank dishwashers: the door-type machine with a stationary rack and a spray-type machine which uses a timed conveyor to carry the racks of dishes through the washing and rinsing cycle. It has the advantage that it is more automatic and handles a larger volume of soiled dishes. Automatic controls available for most machines govern the timing of the wash and rinse cycle, assure proper water temperatures, feed the correct amount of detergent. Capacity of dishwashers is rated by racks per hour, conveyor speed in feet per minute, dishes and glasses per hour, and finally, by meals per serving period the machine can handle. Knowing the present and expected volume of business, an operator can roughly determine the approximate type of dishwasher needed for his sanitizing job. A box enumerates points to look for in buying a single-tank, spray-type dishwasher. A number of maintenance hints are also given.

THE FLAVOR'S NATURAL...

...that's why PRIMEX-FRIED FOODS Taste So Good!

No cooking method can beat deep frying for retaining the full, natural flavor of a food. With proper frying—using a *good* frying fat like Primex—you're always sure to retain the true flavor of the food.

Naturally, your frying should be done with a fat which has no decided flavor of its own. Because food always absorbs some of the fat in the frying process.

And that's another reason why Primex-fried foods *taste* so good! At proper frying temperatures a minimum of Primex is absorbed. Your food benefits from the nutritional value of Primex, but you don't have to worry about unappetizing, grease-soaked foods.

No other frying fat can put more appetite appeal into your fried foods than Primex can. No other frying fat can do more to keep your frying costs low. A month "on Primex" will prove it.

PROCTER & GAMBLE, *Cincinnati, Ohio*

PRIMEX

The "Long Frying Life" Fat

ALL-VEGETABLE . . . ALL-HYDROGENATED

Tractor Train for Delivering Food. At Lincoln State Hospital, Lincoln, Nebraska, the problem of packing and transporting food from a central kitchen to 1650 to 2500 patients loomed large. The methods used in solving this are detailed. These included the packing of food in heated, stainless steel, vacuum food cans and pans which are transported by an electric tractor pulling flat cars through a tunnel system to the dining rooms. The large quantities in which foods are purchased has necessitated the use of a hydraulic lift-jack and skids and other materials handling equipment to move grocery cases and staples, such as flour.

Sanitary Engineering. In planning a food service installation, either new or remodeled, consideration should be given to protection of the water supply from contamination by such occurrences as drops in pressure which may result in siphonage from waste lines and sewer lines that back into the drinking water supply. The problem of sanitary garbage disposal is important not only to the food service operator himself, but also to the community. Tight-fitting, waterproof garbage cans are essential to prevent rodent infestation. Cooperation with government programs to control feeding of unsterilized garbage to hogs is a community service. Rest rooms are also factors which may exert a profound influence on employees and customers. Factors to be considered in locating and planning these public facilities are discussed. Locker rooms for employees, too, need thoughtful planning and periodic inspection to see that they are kept neat and clean.

Standardizing Recipes. In concise and detailed fashion, the author outlines the mechanics of standardizing recipes. She first lists six aids which have been discussed previously in this series. She then continues to: define the standardized recipes: suggest the form to be used in recording data with tips on recording methods: discuss the working plan, and its ramifications, including costing. Illustrations point up some of the details and steps in the process of standardizing a recipe as to ingredients, quantity, directions, and cost.

THE MODERN HOSPITAL

Vol. 82, April, 1954

Practical tips on dietary operation. G. A. Killenberg.—p. 112.

* Some people don't like fish. H. Becker and D. Murakami.—p. 120.

Choice on Fridays. At Barnes Hospital, food waste on Friday, when fish was served, was increasing. To reduce this waste, it was decided that on Fridays only, ward patients would be given a choice between a fish and meat substitute or meat. Not only are patients better satisfied, but food waste has been reduced as hoped. The meat entrée has been overwhelmingly the most popular; depending on the choice offered, from 10 to 40 per cent of the patients have chosen the fish or meat substitute entrée, while the remainder have preferred the meat itself.

PERSONNEL JOURNAL

Vol. 32, April, 1954

* How long does reading improvement last? C. J. Mullins and H. W. Mowry.—p. 416.

Follow-up of Reading Improvement Course. A year after the completion of a course to increase executives' reading speed and efficiency, participants in the program were retested. A reading speed improvement of 109.1 per cent above their scores at the beginning of the course was found (although it was almost 50 per cent below the speed immediately following the course). The students had increased in comprehension by 4.5 per cent over the year following the training, whereas comprehension immediately after the course had been only 2 per cent above that at the beginning. Using a special "reading efficiency" index, a gain of 56.9 per cent was found in the follow-up, over the original index. Since, in dealing with skills of this general type, most forgetting occurs immediately after the learning period ceases, the gains in reading efficiency and speed appear to be permanent.

RESTAURANT MANAGEMENT

Vol. 74, April, 1954

* Planning a modern potwashing department. W. W. Dana.—p. 50.

* Analyzing your overhead costs. 4. Controlling direct departmental expenses. C. V. Kane.—p. 54.

Using rice in fresh and frozen foods. A. Easton.—p. 56.

Pot Washing. The do's and don'ts to be considered in planning a scullery are detailed briefly. The area should be close to both the hot food preparation and vegetable cleaning centers if possible, but the same sink should not be used for both potwashing and vegetable cleaning for sanitary reasons. Minimum needs for potwashing are a sink and a place to store the utensils. A two-compartment sink is a necessity and one with three compartments is preferable. The author feels that storage of pots and pans, both soiled and clean, is best arranged in a series of open-type, slatted shelves which are accessible to the potwasher and also the cooks and that this plan is preferable to the practice of storing pots and pans on hooks above work tables. Machine potwashing in large operations is discussed, and three types of machines are illustrated, one with a cross-section drawing.

Overhead Costs. In this fourth part of a series, the control of direct departmental expenses is considered. The author lists a number of important areas where accounting frequently does not indicate waste, or even actual cost. These include: employees' meals; laundry costs; kitchen fuel and cleaning supplies; menu reproduction; linen and tableware; and the ubiquitous category "miscellaneous" or "other" which may include music and entertainment, printing and stationery, decoration, licenses and taxes, insecticides, and so on.

KITCHEN SAFETY POINTERS

Kitchen employees are safety-conscious at Illinois Institute of Technology, Chicago. A recent picture story in *Institutions Magazine* shows their accident-prevention methods. Some of the "pointers" these employees learn are:

When lifting heavy kitchen equipment, take precautions to avoid strains. An example of this is removal of all the weights before lifting a scale.

Avoid "palming" or pointing of a knife toward you during food preparation.

If butchering of meat requires pulling the knife toward you, use it on an angle so that the forward stroke leads to the side, away from the body.

Always stop a mixer before scraping down with a spatula (to avoid entanglements with the moving equipment).

Use asbestos cloths when removing pans from the oven. Hold them on the edge as well as on the bottom of the pan. If there are racks in the oven, for safest handling draw them out a short distance before removing the baking sheets.

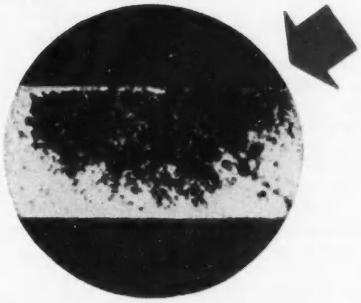
Steam-table precautions include the proper removal of pans. The worker pries the pan from the table with a serving-spoon in her right hand, and at the same time grasps the pan with her left hand, protected by a towel. She then lifts the tray straight up, so that the steam can rise without harming her. Spilled water behind the table or in the kitchen, it is noted, should be mopped up at once.

Employees are also urged to wear comfortable, low-heeled shoes for safest activity.

How Many Meals Did You Serve on Soiled Dishes Today?

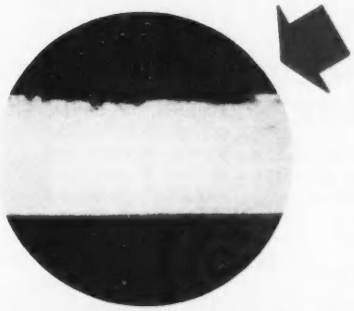
None, as far as you know?

LOOK . . .



Photomicrograph at a magnification of 20 times shows inferior dinnerware with glaze removed absorbing moisture and food, breeding areas for harmful bacteria.

Now, look again . . .



Same magnification of Syracuse China with glaze removed shows *NO* absorption into body of ware. ***Syracuse China is sanitary.***

Syracuse China has a lustrous, steel-hard glaze completely fused to the body to resist scratching by silverware. Syracuse China will not break or chip easily. In the rare event that it does, its body, fired at extremely high temperatures, will *not* absorb liquids and food.

Protect your patients and patrons from hidden injurious bacteria, dirt, grease and disease by serving on non-porous Syracuse China. Even though your diners may not be aware of this health precaution, they will notice immediately the sparkling beauty of Syracuse China.

Typical Service

Typical Child's Service

Your diet cases will eat more eagerly from Syracuse China because it provides an attractive and refreshing setting for their menus that are often colorless due to restrictions.

While the sanitary qualities and colorful beauty of Syracuse China are important, it is also economical in use. Its smooth glaze insures easy washing, its uniform shape makes for easy stacking, and its fire-hardened body guarantees long wearability.

All of these advantages will benefit the tray service, cafeterias and dining halls of your institution when you select from Syracuse China's expanded list of stock patterns.

Syracuse China is sold and serviced by the industry's leading distributors.

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SYRACUSE, NEW YORK

News Notes

Philadelphia—The Scene of 37th Annual Meeting. Any horse will admit that there are certain advantages in wearing blinders. They spare him countless distractions and compel him to look straight ahead. Let's imagine that we can adopt a similar device—a becoming one, of course—which will enable us to look backward at Philadelphia, for instance, at the time when the city was merely the dream of William Penn, proprietary and governor of the Province of Pennsylvania.

The term, "proprietary," may inspire question, but it was applicable because Mr. Penn petitioned Charles II of England to grant him certain lands in America in lieu of a portion of an inheritance left him by his father, which comprised a claim against the British government for £16,999. To our satisfaction, ultimately, the King signed the patent for the Province on March 4, 1681, naming it Pennsylvania in honor of Vice Admiral Penn, William's father.

Proving that our forbears were no dawdlers, plans were well formulated by July of that year, providing that . . . "a certain quantity of land or ground plot be laid out for a large town or city, in the most convenient place upon the river for health and navigation."

Historians indicate that Penn must have decided on the name, Philadelphia, almost as soon as he had obtained the charter for the province and contemplated the settlement of the city. The origin of the name is conjectural, but it is supposed that Penn, a highly religious man and a Quaker, selected it from that of a city in Lydia, Asia, the location of one of the seven early Christian churches. Its connotation, "brotherly love," no doubt determined its selection.

Shortly after the charter was signed, Quaker settlers began to sail to the new land, the majority establishing themselves in what is now Chester because a year was to pass before Philadelphia was laid out and made ready for settlement.

Members of this religious group formerly called themselves "Professors" or "Children of the Light." It was through a misadventure of John Fox, their founder, that they became popularly known as Quakers. Arrested in Derby, England, he was brought before a magistrate, a Puritan Roundhead. Fox commanded all those present "to tremble at the name of the Lord," and thus the name, Quaker, was applied derisively to his followers.

From the moment building lots were available for sale in Philadelphia, in 1682, the city mushroomed. At the time of the Revolution, it was the second largest English-speaking city in the world. Its growth and prosperity were accountable to the unique Quaker policy of religious liberty for everyone and considerable political liberty for many.

Gravitating there from Europe came doctors, teachers, painters, and such pamphleteers as Tom Paine and scientists like Joseph Priestly, the discoverer of oxygen. These leaders in their respective fields contributed toward Philadelphia's becoming the center of American culture and enlightenment in the eighteenth century, even though it was fifty-seven years younger than New York and fifty-two years younger than Boston.

Equipment for Small Dietary Departments. Just released is the new nineteen-page copyrighted report, "Suggested Equipment for Small Hospital Dietary Departments," prepared by a subcommittee of the Food Administration Section of the Illinois Dietetic Association. The book covers principles of planning, including location and area requirements, work flow, placement of equipment, facilities for staff and personnel, lighting, wiring, and ventilation. The second section deals with construction features and recommendations as to types of equipment needed in the small hospital. Specific purchasing lists by kitchen area are suggested, as well as location, construction materials, and installation considerations. Copies of the booklet are available for 50 cents each from Isabelle N. Peterson, John Sexton & Company, Box J.S., Chicago 90, Illinois.

Plentiful Foods MONTHLY LIST

The Department of Agriculture expects the following foods to be plentiful during June:

Protein Foods

Beef
Chickens—broilers and fryers
Eggs
Fish, fresh
Milk and other dairy foods

Other Foods

Cantaloupes
Potatoes
Raisins
Tomatoes
Vegetable fats and oils

Features for the month, with special promotions urged, will be milk and other dairy foods.

1954 *Institutions* Winners. Among the five first awards in the 8th Annual Food Service Contest conducted by *Institutions Magazine* is: St. Agnes Hospital, Fond du Lac, Wisconsin—Sister Crescentia, Dietitian.

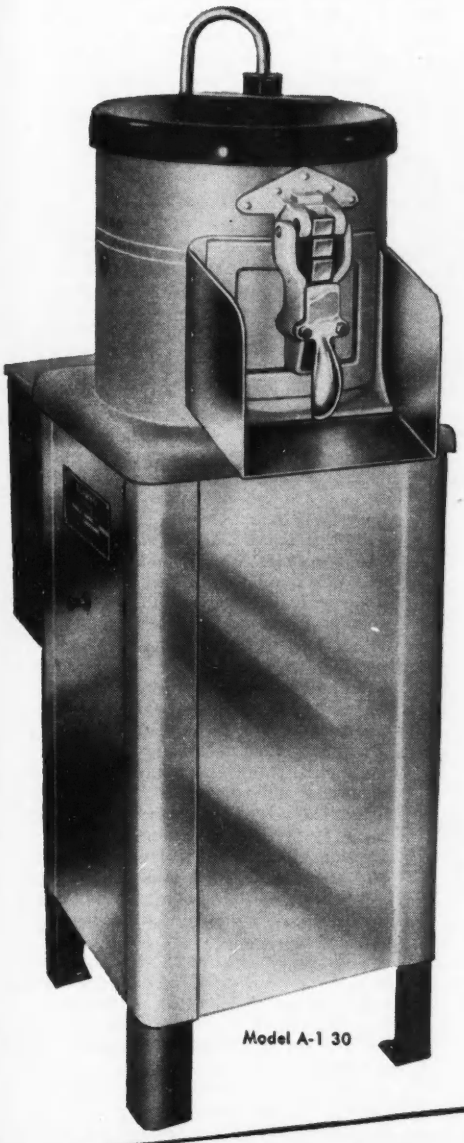
Merit Award winners included: 1. Cleveland City Hospital—Elizabeth Perry, Chief Dietitian; 2. Louis A. Weiss Memorial Hospital, Chicago—Katherine Vatz, Chief Dietitian; 3. Children's Hospital Society of Los Angeles—Juanita Kenefick, Chief Dietitian; 4. St. Francis Hospital, Lynwood, California—Sister Wilma, Chief Dietitian; and 5. Men's Residence Hall, University of Washington, Seattle—Margaret Terrell, Director of Dining Halls and Residence.

Four of the Honor Awards went to institutions employing A.D.A. members: 1. Kaiser Foundation Hospital, Los Angeles—Adrienne Safier, Chief Dietitian; 2. New Orleans Baptist Theological Seminary—Thelma VanHooser, Dietitian; 3. Philadelphia General Hospital, Elizabeth Miller, Chief Dietitian; and 4. St. John's Hospital, Springfield, Missouri—Sister Edwarda, Dietitian.

Red Cross Consultant. The American Red Cross has announced the appointment of Dorothy L. Bovee as Food and Nutrition Consultant. Miss Bovee's duties will include work with the Red Cross Canteen Service in training volunteers in mass feeding activities; with the Disaster Service on the provision of low-cost, but safe and adequate food in emergency; and assistance to the Home Service in determining basic allowances needed for adequate food for families applying for financial assistance.

AHEA Meeting. The 45th Annual Meeting of the American Home Economics Association, to be held in San Francisco, July 6 to 9, will take as its theme "Today's Challenge to the Home Economist." A rich program has been planned, beginning with the keynote speech on "The Challenge of Education for One World" to be given by Dr. John Harvey Furbay, internationally known lecturer. Other equally interesting sessions will cover such topics as "The Role of the Home Economist in Expanding Programs of International Service" and the home economists' responsibility in development and use of research to improve home and family life in this country and abroad. Special sessions will be devoted to reviewing recent research findings.

Canadian Dietetic Association. On June 8, 9, and 10, the Canadian Dietetic Association is meeting in Halifax. Highlight of the meeting will be the Violet Ryley-Kathleen Jeffs Foundation Memorial Lecture which this year will be given by Dr. Jean Mayer, Harvard School of Public Health. He will discuss "Nutrition and Civilization." Other features of the program will be a talk by Elizabeth Caso, Nutrition Consultant, Diabetes Section, U. S. Public Health Service, Boston on "Nutrition of the Diabetic in Public Health Programs"; and an address by Louise Hatch, Director of the Dietary Department,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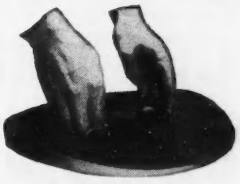
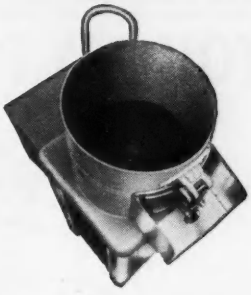
Double Action PEELERS



Speedy and efficient "double action" peeling is achieved by sharp abrasive on both disc and cylinder.



Choose the exact peeler for your needs . . . TOLEDO has it! Rolling motion of the vegetables exposes the peel uniformly to the abrasive, insuring complete "skin deep" peeling with a minimum of waste. Built-in peel trap separates peelings from water. Toledo Peelers are exceptionally easy to clean. Disc lifts out. Bottom of cylinder is designed so it will not catch peel particles. Full rated capacity is peeled in 1 to 1¼ minutes. Readily adaptable to installation requirements. A-1 Series for outstanding performance in restaurant kitchen use . . . A-1-C Series for heavy-duty production use.

10 models
15 lb. to 70 lb.

A-1 Series	A-1-C Series
A-1-B-15	A-1-C-15
A-1-15	A-1-C-30
A-1-30	A-1-C-50
A-1-45	A-1-C-60
A-1-60	A-1-C-70

Model 50B

NEW...
Food Waste DISPOSER with Reverse-CLEAN Action

This new Toledo disposes of your food waste the fast, easy, sanitary way. Eliminates tedious, obsolete handling of garbage pails . . . food waste is shredded and flushed away. "Reverso-CLEAN" Action—self-cleaning, as shredder reverses automatically on each use, or under extra load. Easily installed in sink, for standard opening, or with stainless steel cone and scraping block, or silverware guard.

Please send without obligation your bulletins on these Toledos:

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Massachusetts General Hospital, Boston, on "Human Problems of Dietary Administration."

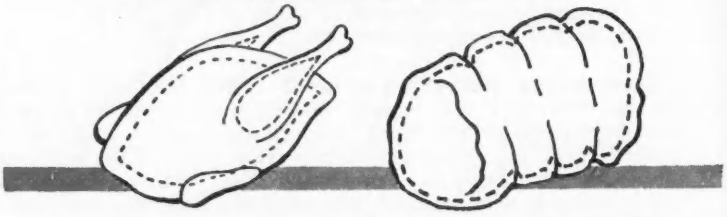
Southeastern Conference of Dietitians. When the Southeastern Conference of Dietitians met in Atlanta on April 7, 8, and 9, the largest attendance yet experienced was enjoyed, with dietitians of the six states comprising the Conference as well as some from North and South Carolina.

The meeting was held in conjunction with the annual Southeastern Hospital Conference. In addition to the special sessions for the dietetic group, two of the general programs featured dietitians. At one meeting, the problem of stabilization of employees through training was discussed by persons concerned with housekeeping personnel, nurses aides, and kitchen helpers. Elma L. Benton, Chief, Dietetic Service, VA Hospital, Birmingham, Alabama, covered the question of dietetic employees. Another panel on "Team Work for Better Patient Care," featured Kathleen Stitt, Dietitian from Selma Baptist Hospital, Selma, Alabama, as the discussant who represented the dietitian. Others on the panel talked on the role of the administrator, the medical staff, the nursing department, and the technician in team care.

Officers for the coming year of the Southeastern Conference of Dietitians, elected at this meeting, will be: President, Margaret Dykes, Georgia Department of Public Health, Atlanta; President-Elect, Frances Sanders, VA Hospital, Alexandria, Louisiana; Vice-President, Margaret Clark, Emory (Georgia) University Hospital; Secretary, Theresa Brungard, Southern Baptist Hospital, New Orleans; and Kathleen Stitt, Selma (Alabama) Baptist Hospital.

YOU PAY FOR GOOD MEAT-

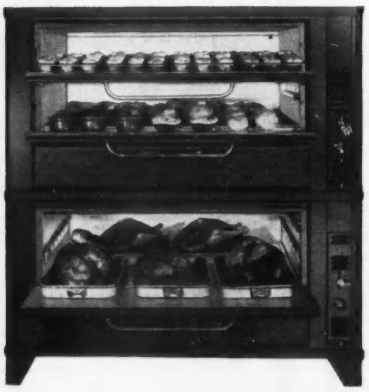
Why WASTE it?



BLODGETT ROASTING CUTS DOWN LOSS
SAVES UP TO 71% ON MEAT SHRINKAGE!

You know that low-temperature roasting is the key to savings on meat shrinkage. Why run up your costs by hurrying your meats and poultry in crowded oven space not large enough for your needs? Blodgett's large hearth area (five 25–35 lb. turkeys per deck) gives you the CAPACITY you need. Blodgett's accurate thermostats give you CONTROLLED roasting. Blodgett's heavy insulation (4" fiberglass) gives you the most from your fuel.

Savings (up to 71%) on meat shrinkage alone will pay the moderate cost of a Blodgett roasting oven in a few months, and will continue to put money in your pocket year in and year out.



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Government Publications. Comprehensive listings of active projects in food and nutrition research, the laboratories, supporting organizations, and professional research personnel engaged in the research have been published in a new report, *Survey of Food and Nutrition Research in the United States of America 1952–53* by the U. S. Department of Agriculture. The survey, done by the Food and Nutrition Board of the National Research Council under contract with the Department of Agriculture, indicates that more than 4800 projects are underway. Previous surveys made in 1947 and 1948–49 have been reported previously. Of the research projects recorded, approximately 40 per cent pertained to nutrient metabolism and requirements (physiology), 30 per cent to food chemistry and composition, 20 per cent to food technology, and 10 per cent to microbiology, food acceptance, and nutrition education. Between 1947 and 1953, there has been a considerable increase in the number of projects devoted to food technology and a decrease in those pertaining to food chemistry and composition. The objective of the surveys has been to provide a guide for research workers to use in learning what research is being done in a field of interest, where it is being done, how it is financed, and who is doing it. In this way, it is hoped that duplication of effort may be avoided.

Nutritive Content of Homemakers' Meals—Four Cities, Winter 1948 is now available as Agriculture Information Bulletin No. 112 of the U.S.D.A. By Faith Clark and Lillian J. Fincher, this report covers a study of the nutritive content of the diets of approximately 1000 homemakers based on reports of their meals for a 24-hr. period. The data were obtained by the Family Economics Division, Bureau of Human Nutrition and Home Economics, in Birmingham, Buffalo, Minneapolis-St. Paul, and San Francisco. Organization of the report includes "Nutritive Adequacy of Diets," "Factors Affecting the Nutritive Content of Homemakers' Food," "Contribution of Each Meal to Day's Food," "Nutritive Content of Food at Home and Away from Home," and "Implications for Dietary Surveys of Separate Meal Analysis and of Data on Food Away from Home." These data were collected in conjunction with the family surveys conducted in these four cities and reported previously in a series of processed reports. This report may be obtained from the Superintendent of Documents, Washington 25, D. C., for 25 cents a copy.

Four Futures is the title of a new recruiting brochure recently released by the Department of Defense in the interest of augmenting the ranks of the women's medical professions—nursing,

salt

"But Doctor, how can I eat without salt?-"

Many doctors and nutritionists report that the *real* problem of the low-sodium diet centers around the unpalatability of the patient's menu. The most frequent complaint is that unsalted foods taste flat, insipid.

The use of fresh lemon juice is proving of genuine benefit to many thousands on low-sodium diets. Patients find that a squeeze of lemon added at the table transforms tasteless, unsalted foods into tempting, appetizing ones. The sharp tang and aromatic flavor of fresh lemon juice compensate for the absence of salt.

Fresh lemon juice has a very favorable ratio of sodium to potassium. It is virtually sodium-free (approx. 1 mg. per 100 cc.) and is relatively high in potassium (130 mg. per 100 cc.).

In weight-reducing diets, when salt restriction is advisable, seasoning with fresh lemon juice adds zest and flavor to low-calorie foods.

Suggest that a dish of lemon wedges be placed on the table every meal.

Sunkist *fresh lemons*

"The Low Sodium Cook Book—Special Sunkist Edition," by Alma Smith Payne and Dorothy Callahan, research dietitian, Massachusetts General Hospital, with introduction by Francis L. Chamberlain, M.D., M.Sc.D.

The cook book has 480 pages and contains hundreds of recipes. It is the most authoritative book of its kind. Available now at the special price of only $1.25 *(regular edition $4.00)*. You are invited to write for copies in quantity.

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dietetics, occupational and physical therapy. In view of the shortage of personnel in all four of these professions, the booklet has been prepared for the high-school-girl audience. It is designed to present general opportunities in the four fields with a view to the long-range needs of both civilian institutions and military hospitals. Prepared under the guidance of Mrs. Nelson A. Rockefeller, who serves on the Defense Advisory Committee on Women in the Services, the cooperation of the four professional associations concerned was enlisted. The booklet is believed to be the first illustration of the effectiveness of inter-association and inter-profession cooperation. Copies have been supplied to each professional organization concerned, including A.D.A., for distribution to state affiliates and vocational guidance chairman.

Chronic Illness—Digests of Selected References 1950–52 by Violet B. Turner has been issued by the U. S. Public Health Service as Public Health Bibliography Series No. 1, Supplement. It is a 262-page, annotated bibliography of recent publications and references which indicate the direction of current plans and programs designed to combat the serious consequences of chronic conditions. Its cost is $1.00 per copy from the Superintendent of Documents, Washington 25, D. C.

"Older" Women as Office Workers has been released as Women's Bureau Bulletin No. 248. In its first section are described the training programs for older women in office work which have been carried on in Cleveland, Milwaukee, New York, and Denver. The second part of the booklet is devoted to "facts" on older women workers in relation to office work, including a number of graphs and tabular illustrations of employment conditions for this type of worker. Copies are available from the Superintendent of Documents, Washington, D. C., for 25 cents each.

Visual Aids Publication. Prepared originally to help trainers of Girl Scout leaders, the loose-leaf guide on *How to Make and Use Visual Aids* recently published by the Girl Scouts of the U.S.A., should find a ready audience in any group concerned with teaching methods. In it, elementary principles involved in preparing visual teaching aids are presented in concise, cleverly illustrated form. This thirty-one-page "how-to-do-it" guide, begins with the elementary question, "What are visual aids?" and follows through with the subject by discussing preparation of charts, graphs, methods of presenting charts, and material which can be used, such as the flannelgraph, bristol board, paints, inks. Other sections are devoted to projected photographic aids. Copies of this publication are 50 cents each, from the Girl Scouts of the U.S.A., 155 East 44th Street, New York 17.

FAO Publication. The Nutrition Division of the Food and Agriculture Organization of the United Nations has prepared a comprehensive bibliography of printed home economics material available in most of FAO's member countries. Prepared in response to the recommendation of the 6th FAO Conference in November 1951 that a Home Economics Information Exchange be established, the material is classified by country and by subject, such as nutrition, food preparation, clothing, kitchen planning and equipment, radio and television programs, posters and charts, and so on. For each entry, the title, author, source, address to which requests for material should be sent, and language used in the material are listed. Films are not included in this listing. Copies of this compilation, titled *Material on Home Economics and Its Teaching*, are available in the U. S. for 50 cents each from International Documents Service, Columbia University Press, 2960 Broadway, New York 27.

Film. Recently previewed was the newest release of Encyclopaedia Britannica Films, Inc., and the Twentieth Century Fund titled "Look to the Land." Devoted to our problem of preserving our natural heritage of soil, forest, range, and water resources, this film is a thought-provoking presentation of agricultural economics. In full-color sequences filmed across the nation, the film is based on the Twentieth Century Fund's publication *America's Needs and Resources* by J. Frederic Dewhurst and Associates. The film is available either for rent or purchase. Information may

Yes, It's True

Now you can put

Fully Sweetened Foods

Back in the Diet

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SUCARYL®

(Cyclamate, Abbott)

the new non-caloric sweetener

Fresh, Clean Sweetness

Tastes like sugar, never has an "off" taste in ordinary use.

Won't Turn Bitter in Cooking

Cooked or baked—in any food at any temperature—SUCARYL holds its sweetness.

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At all pharmacies. See our Recipe Booklet for a wide and colorful variety of SUCARYL-sweetened dishes.*

*At pharmacies; or write Abbott Laboratories, North Chicago, Ill.

406144

Enriched bread, representing the bulk of bread consumed today, makes significant nutrient contributions to the dietary and to the nutritional health of the American people.[1] Bread cannot be regarded merely as an energy food. Instead, it is an important purveyor of many nutrients which a large proportion of our population would never receive in adequate amounts if enriched bread were not available on so large and wide a scale.[2] Here is what modern day enriched bread provides:

VITAMINS: Containing specified amounts of thiamine, riboflavin, and niacin, enriched bread makes a significant contribution to the satisfaction of these vitamin requirements. Enriched bread has played an important role in virtually eliminating frank deficiency diseases and materially reducing subclinical deficiency states resulting from dietary inadequacies in these essentials.[2]

MINERALS: By providing substantial amounts of calcium[3] and of added iron, modern enriched bread goes far in satisfying the needs for these substances. For example, six ounces of bread on the average provides approximately 15 per cent of the day's recommended calcium allowance for adults and 38 per cent of the iron allowance.

PROTEIN: The protein of commercial bread is of high biologic value because it is a mixture of wheat flour protein and milk protein, the latter derived from added nonfat milk solids.[4] One pound of enriched bread furnishes about 39 Gm. of protein.

ECONOMY: At its present day low price, bread represents an outstanding nutritional "buy." It provides not only generous amounts of essential nutrients, but also readily available food energy. These features truly make enriched bread one of America's *basic foods.*

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

REFERENCES

1. Sebrell, W. H., Jr.: Trends and Needs in Nutrition, J.A.M.A. *152*:42 (May 2) 1953.

2. Flour and Bread Enrichment, 1949-50: Prepared by The Committee on Cereals, Food and Nutrition Board, National Research Council, 1950.

3. Data furnished by the Laboratories of the American Institute of Baking, Chicago, Illinois.

4. Sherman, H. C.: Chemistry of Food and Nutrition, ed. 8. New York, The Macmillan Company, 1952, pp. 212; 597-600; 646.

AMERICAN BAKERS ASSOCIATION
20 NORTH WACKER DRIVE • CHICAGO 6, ILLINOIS

be obtained from Encyclopaedia Britannica Films, Wilmette, Illinois.

Low-Sodium Recipes. Work of students in nutrition and experimental cookery at the Tuskegee Institute has been gathered together in a small booklet titled "Low-Sodium Recipes" published by the John A. Andrew Memorial Hospital connected with the Institute. In the booklet are presented eight recipes for baked goods and two for frozen desserts using low-sodium powdered milk. Prepared for patients' use, it includes in addition to the recipes, sodium and potassium analyses by the flame photometer of seven of the products.

Nutrition Foundation Grants. At the annual spring meeting of the Board of Trustees of the Nutrition Foundation, Inc., held in Chicago, it was announced that grants in aid totalling $3,172,000 have been made by the Foundation for basic research in nutrition. These grants have gone to seventy-five universities and colleges.

In addressing the group, Dr. Charles Glen King, Scientific Director of the Foundation, pointed out that "food faddists and nutrition quacks are doing great damage to the public by misleading propaganda. Their efforts cause economic loss in wasted expenditures on food fads reaching about half a billion dollars per year. What is more serious is the confusion they cause in preventing the public from learning and having confidence in sound nutrition practices. One of our greatest national needs, both economically and health-wise, is an educational program that will be effective in an economic sense and in the protection of public health."

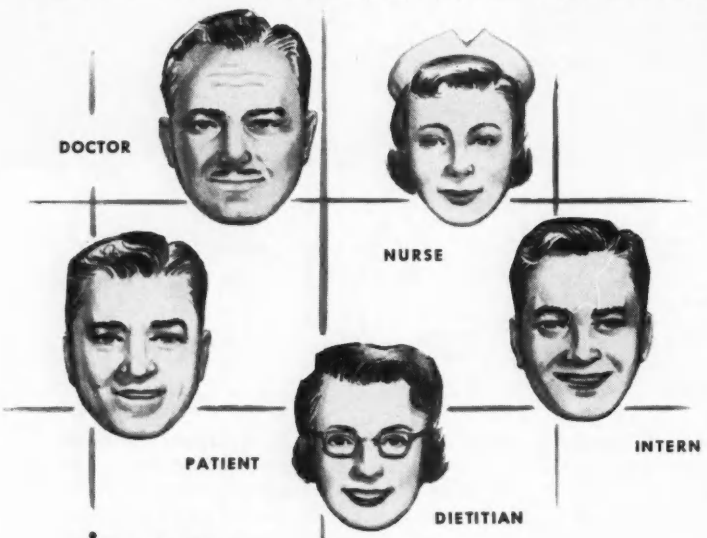
New Bread-Making Process. At the annual meeting of the American Dry Milk Institute in Chicago in April, a new commercial bread-making process which eliminates the sponge operation was announced. Called the "ADMI Stable Ferment Process," it makes use of 60 per cent more nonfat dry milk solids for breadmaking than the customary sponge operation and thus will provide greater protein and calcium. The report, made by L. H. McLaren of the Institute's Bakery Service, stated that the best bread obtained with the new process is made with 6 per cent nonfat dry milk solids, which is in line with recommendations of the Food and Nutrition Board of 1945 and 1950. A patent on the process has been applied for.

Low-Sodium Fresh Milk. In Glendale, California, Dr. A. L. Chaney, with the assistance of the Los Angeles County Heart Association, has developed a process that eliminates 90 per cent of the original sodium content of fresh milk. The final product is a fluid indistinguishable in taste from ordinary fresh milk and costs approximately 40 per cent less than most powdered, low-sodium milks. The process will be licensed to the major milk companies, and it is expected that production will begin soon in metropolitan areas. The low-sodium, fresh milk is already available in the Los Angeles area.

Tea-Making Research. The National Restaurant Association, through a grant from the Tea Council of the U.S.A., Inc., has retained the Battelle Memorial Institute, Columbus, Ohio, to develop tea-brewing equipment which is tailor-made to the requirements of restaurants and institutions. A survey in 1953 indicated that only 8 per cent of the nation's restaurants make hot tea properly, while 32 per cent make iced tea according to the approved method. The Institute has outlined a three-step program of research, design, and development of "foolproof" equipment which will assure a good tea product and make its preparation as easy as any other hot or cold beverage a restaurant serves.

Freezing Sandwiches. The U. S. Department of Agriculture offers the following suggestions about freezing sandwiches:

Filling suitable for sandwiches to be frozen include: luncheon meats, leftover sliced roast beef, roast pork, baked ham, chicken, turkey, dried beef, tuna, salmon, sliced cheese, cheese spreads, yolks (but not whites) of hard-cooked eggs, and peanut butter. Use separately or combine with cream cheese, creamed butter, mayonnaise, or



in every
department everyone enjoys...

More Coffee Flavor

There are many tastes to please in a hospital—nurses, patients, doctors, the administrative staff. In coffee *all* want FLAVOR. Millions enjoy Continental Coffee because it has the *most* in flavor—delicious, winey-rich, full-bodied and unvaringly fine—kept so by special Automatic Roasting Controls that maintain exact uniformity.

Continental's topnotch coffee service is so highly regarded that nearly 23,000 hospitals, restaurants, hotels, and other dining places prefer and serve Continental Coffee today! So for more coffee flavor and *better value* for *your* hospital, see your Continental Man... now!

For best results regardless of brand—always brew your coffee 2½ gallons to the pound

Continental Coffee

AMERICA'S LEADING COFFEE for RESTAURANTS, HOTELS AND INSTITUTIONS
CONTINENTAL COFFEE COMPANY CHICAGO • BROOKLYN • TOLEDO
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It's here . . . it's a sensation!

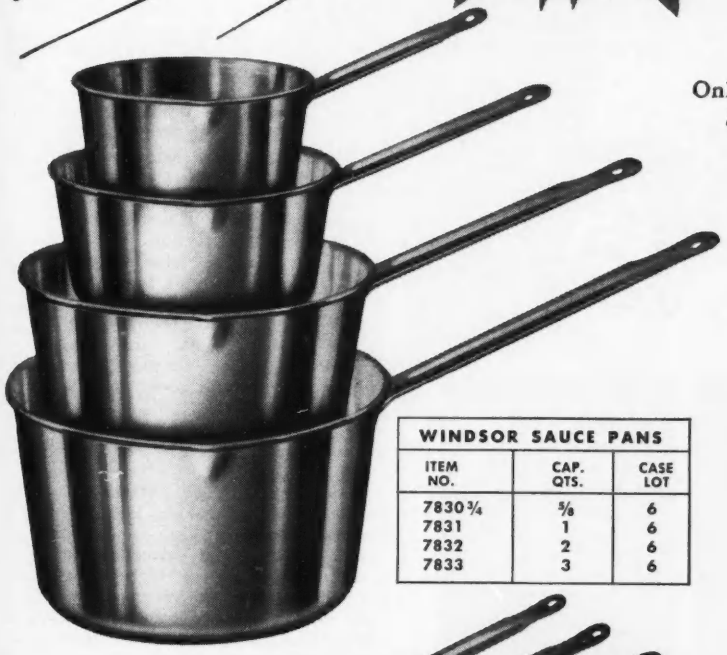
NON-TARNISHING...

SOAKS UP HEAT FASTER...

STAINLESS STEEL WARE
Vollrath
PAT. APPLD. FOR
ALLOY HEAT CONDUCTOR BOTTOM

SPREADS HEAT EVENLY...

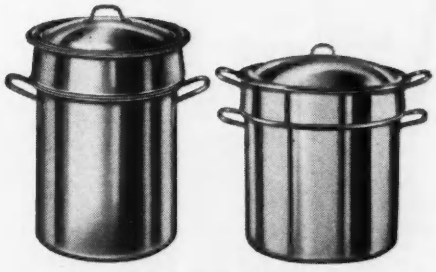
FOR BETTER, LOW-COST COOKING!



Only new Vollrath Ware offers this *bonded-on alloy bottom* that combines top cooking performance with the heat-retaining and easy-cleaning advantages of stainless steel! Get Vollrath Ware now!

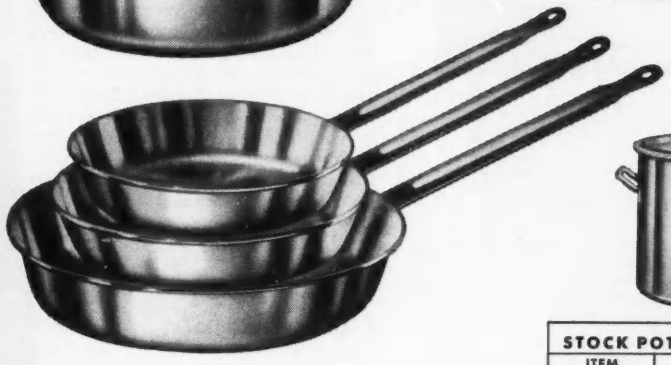
WINDSOR SAUCE PANS

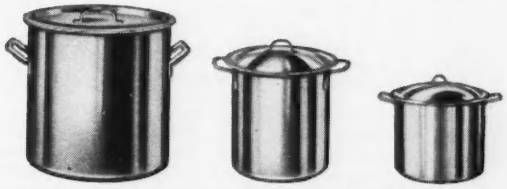
ITEM NO.	CAP. QTS.	CASE LOT
7830¾	⅝	6
7831	1	6
7832	2	6
7833	3	6



DOUBLE BOILERS

ITEM NO.	INSET CAP.	CASE LOT
7704	4⅛	1
7711	11	1





STOCK POTS (with cover)

ITEM NO.	CAP. QTS.	CASE LOT
7855	4¼	1
7859	12½	1
7867	24	1
7868	38	1

STOCK POTS (without cover)

ITEM NO.	CAP. QTS.	CASE LOT
7854	4¼	1
7858	12½	1
7862	24	1
7863	38	1

FRY PANS

ITEM NO.	TOP DIAM. (Inside)	CASE LOT
7843	8⅜	6
7845	9⅜	6
7847	12	3

FIRST FOR QUALITY IN STAINLESS STEEL

SINCE 1874
The Vollrath Co.
SHEBOYGAN, WISCONSIN

Sales Offices and Display Rooms
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salad dressing. Add sliced or chopped olives and dill or sweet pickles if desired.

For safety, freeze only freshly prepared sandwiches and fillings. Avoid raw vegetables, such as lettuce, celery, tomatoes, and watercress which lose crispness, color, and flavor when frozen; whites of hard-cooked eggs which become tough; and fruit jellies or preserves which soak into bread. Spread bread with softened butter or margarine, not with salad dressing or mayonnaise which soaks into bread. Once frozen sandwiches are thawed, use them promptly because they spoil rapidly after they have been warmed to temperatures above 45°F.

Wrap each sandwich in a double thickness of heavy waxed paper or with moisture-vapor-resistant wrapping, folded tight. Freeze and store at 0°F. or below. In heavy waxed paper, sandwiches keep fresh in the freezer a week; in moisture-vapor-resistant wrapping they may be stored two or three weeks. Thawing at room temperature takes about 3 hr.

Prepackaged Vegetables and Fruits. Studies by H. A. Schomer of the U.S. Department of Agriculture indicated that prepacking of fresh produce has both advantages and disadvantages. If properly cared for, pre-packaged produce has several advantages over bulk selling: self-service is possible, saving time and labor for both shoppers and retailers; it is more sanitary and saves waste from handling by shoppers. Some special services are included. For example, spinach is washed before packaging, sweet corn is husked and trimmed, slaws and salads are cut or otherwise prepared for serving, and the wrap protects against loss of moisture and wilting.

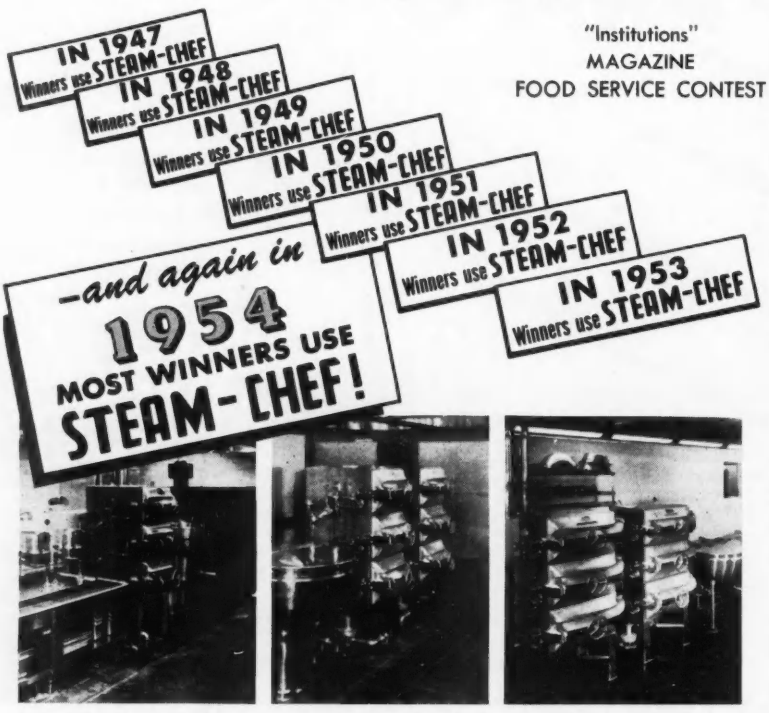
But, in the moist atmosphere inside the package, some produce becomes more perishable and more likely to decay or discolor unless kept cold. Cuts and bruises from trimming and other preparation before packaging add to their perishability, and one decayed fruit or vegetable may mean loss of the whole package or repacking. Thus, it pays to package only high quality fruits and vegetables. Prompt cooling after harvest and before packaging is needed because the package slows up cooling.

Keeping Peanut Candies. Studies at the Georgia Experiment Station indicate that peanut candies may be kept fresh for as long as two years if they are well packaged and stored at 0°F. Using twenty kinds of peanut candies, the Station stored samples at temperatures ranging from 10°F. to 100°F. Refrigeration had great advantage in preserving fresh color, aroma, and flavor of these candies, in retarding staleness and rancidity, and in preventing insect infestation. The higher the temperature, the shorter was the time the candy kept well. It was learned that peanut brittle and spun peanut butter bars need lower temperature and humidity than most other peanut candies. Chocolate coatings help in keeping the candy in good condition, it was also shown, but all candies need wrappings to protect them from absorbing moisture in storage.

Baking at High Altitudes. A recent report on baking in mile-high kitchens indicates that most quick breads, cookies, and cakes need extra liquid when made at high altitudes. Emma Thiessen of the Wyoming Experiment Station points out that flour dries out in these semi-arid climates, particularly when it is stored in sacks or ordinary flour bins, and she suggests that homemakers in dry climates store flour in tightly closed tin containers to prevent drying out. With such storage, the quantity of moisture needed in baked products will be more uniform. Mixes for cakes and other products also should be stored in tight containers and in a cool place.

News of State Associations

Colorado Dietetic Association. Colorado dietitians joined with the Colorado Home Economics Association in its spring meeting held April 23 and 24 at the University of Colorado, Boulder. Included on the joint program were discussions of "What's New about the Newer Man-Made Fibers and Finishes?" by Beth Peterson, E. I. duPont deNemours & Co., Wilmington, Delaware, and "Ideas of Democracy as In-


IN 1947 Winners use STEAM-CHEF
IN 1948 Winners use STEAM-CHEF
IN 1949 Winners use STEAM-CHEF
IN 1950 Winners use STEAM-CHEF
IN 1951 Winners use STEAM-CHEF
IN 1952 Winners use STEAM-CHEF
IN 1953 Winners use STEAM-CHEF
"Institutions" MAGAZINE FOOD SERVICE CONTEST
—and again in 1954 MOST WINNERS USE STEAM-CHEF!

Once again, the annual winners in the Institution Magazine Food Service Contest are announced. And once again, as in each previous contest, nearly all of the prize kitchens cook with steam—*an overwhelming majority with STEAM-CHEF.*

FOR THE SECOND YEAR IN SUCCESSION—ALL FIVE FIRST AWARD WINNERS USE STEAM-CHEF!

Pictured above are STEAM-CHEFS in three of the five first-prize winning kitchens: Indiana University, Putch's Cafeteria in Kansas City and Douglas Aircraft at Torrance, California. The two other top winners—Broadmoor Hotel in Colorado Springs and St. Agnes Hospital in Fond du Lac, Wisconsin, are also STEAM-CHEF enthusiasts.

STEAM-CHEF cookers are available for gas, steam or electric operation, in sizes to meet the needs of kitchens serving 100 or more meals per day. For smaller kitchens we offer *Steamcraft*—in floor or counter mounting styles, with one or two compartments.

If you want to learn why STEAM-CHEF or *Steamcraft* steam cookers are preferred by leading restaurants and other food service operations, write for descriptive literature.

THE WINNER Educational 24-minute sound, color movie, gives dramatic steam cooking demonstration. Available on request for showing to groups.

THE CLEVELAND RANGE COMPANY

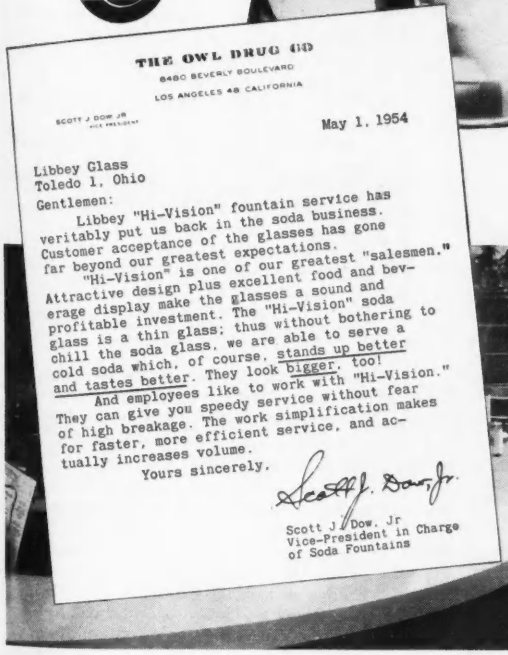
"The Steamer People"

3333 LAKESIDE AVENUE CLEVELAND 14, OHIO

"Sodas actually look and taste better..."

Libbey Heat-Treated Soda Glass in "Hi-Vision" Holder

Libbey HEAT-TREATED



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6480 BEVERLY BOULEVARD
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SCOTT J. DOW JR
VICE PRESIDENT

May 1, 1954

Libbey Glass
Toledo 1, Ohio

Gentlemen:

Libbey "Hi-Vision" fountain service has veritably put us back in the soda business. Customer acceptance of the glasses has gone far beyond our greatest expectations.

"Hi-Vision" is one of our greatest "salesmen." Attractive design plus excellent food and beverage display make the glasses a sound and profitable investment. The "Hi-Vision" soda glass is a thin glass; thus without bothering to chill the soda glass, we are able to serve a cold soda which, of course, stands up better and tastes better. They look bigger, too!

And employees like to work with "Hi-Vision." They can give you speedy service without fear of high breakage. The work simplification makes for faster, more efficient service, and actually increases volume.

Yours sincerely,

Scott J. Dow, Jr.

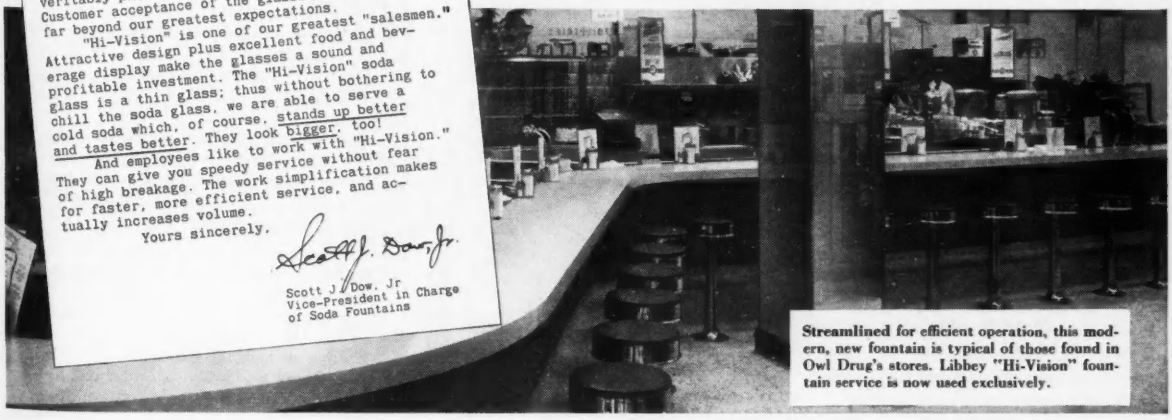
Scott J. Dow, Jr
Vice-President in Charge
of Soda Fountains

Libbey "Hi-Vision" Service scores merchandising success at Owl Drug Co. fountains

ONLY after months of hard testing did the Owl Drug Company adopt Libbey "Hi-Vision" fountain service. That was more than three years ago! Is the company satisfied? We think Mr. Dow's letter speaks for itself. 62 Owl stores on the West Coast use "Hi-Vision" exclusively—to sell their tasty sodas "on sight," quietly, yet effectively.

You'll like the operating economies of Libbey "Hi-Vision" Service, too. The Heat-Treated tumblers are specially processed to withstand the knocks of hard, everyday usage. And each glass carries the money-saving protection of Libbey's "Safedge" guarantee: "A new glass if the rim of a Libbey 'Safedge' glass ever chips!"

For samples and prices of Libbey's "Hi-Vision" Service—or any of the many other tumbler items in the complete Libbey line—see your near-by Libbey Supply dealer. Or write to Libbey Glass, Division of Owens-Illinois, Toledo 1, Ohio.



Streamlined for efficient operation, this modern, new fountain is typical of those found in Owl Drug's stores. Libbey "Hi-Vision" fountain service is now used exclusively.

LIBBEY SAFEDGE GLASSWARE
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

fluenced by Training and Occupation" by Dr. J. Nelson Perryman. A panel discussion considered the problem of "What Is Involved in Good Supervision?"

Florida Dietetic Association. The Community Nutrition Section of the Florida Dietetic Association is planning to conduct a pilot institute for food managers of small hospitals in the St. Petersburg-Tampa area, with local dietitians assisting. From the experience gained by this project, it is hoped that other institutes can be offered throughout the state.

The *Tampa Dietetic Association* is working with the Hillsborough County Dairy Council on the preparation of a booklet for low-calorie party refreshments—menus, recipes, and ideas—which will be available on request. In March, the Tampa and St. Petersburg dietitians held a joint meeting to hear Dr. Robert Rothermel, Pinellas County Health Officer, discuss ways a dietitian can be of service in teaching good nutrition to the community.

Georgia Dietetic Association. The spring meeting of the George Dietetic Association was held in conjunction with the Southeastern Conference of Hospital Dietitians on April 7 to 9 in Atlanta. New officers of the George Association are: President, Marjorie Massee, Atlanta; President-Elect, Josephine Martin, Georgia School Lunch Supervisor, Atlanta, Treasurer, Gwendolyn Biggerstaff, Georgia Warm Springs Foundation, Warm Springs; and Secretary, Martha E. Clark, Emory University Hospital, Emory.

Again this year, the Georgia Dietetic Association offered two $150 scholarships to outstanding seniors to apply on the expenses of a dietetic internship approved by A.D.A. The scholarships were awarded this year to Jean Buerner, University of Georgia, and to Dorothy Doster, Georgia State College for Women.

Idaho Dietetic Association. On April 8, the Idaho Dietetic Association conducted a workshop at the University of Idaho, Moscow, on "New Trends in Teaching Nutrition and Current Theories in Diet Therapy." Doris Odle, A.D.A. Treasurer, and Director of Dietetics, University of Colorado Medical Center, Denver, served as consultant.

For their project this year, the Idaho dietitians are planning a series of workshops for hospital cooks for the purpose of interpreting and following up the *Idaho Diet Manual* which was published and distributed last fall to small hospitals in the state.

Indiana Dietetic Association. The Indiana Dietetic Association met on April 27 and 28 in Indianapolis. The following speeches were included in the program:

"Current Status of Fluorine in Dental Health"—Joseph C. Muhler, D.D.S.
"Effect of Heat on Nutritive Value of Protein"—Ruth Griswold, Ph.D., Department of Home Economics, Indiana University, Bloomington
"In-Service Training for Personnel"—W. C. Christensen, Eli Lilly & Company, Indianapolis
"Administrative Help for Small Hospitals"—Isola D. Robinson, Dietetics Specialist, American Hospital Association, Chicago
"Nutrition Research"—Kate Daum, Ph.D., University of Iowa, Iowa City
"My Work with the National Institutes of Health"—Ann Reimer, Clinical Center, National Institutes of Health, Bethesda, Maryland

Michigan Dietetic Association. The spring convention of the Michigan Dietetic Association, held in Ann Arbor on April 7 and 8, featured discussions of current developments. The program included:

"Atomic Food Preservation"—Dr. Lloyd Brownell, University of Michigan
"Fructose in the Treatment of Diabetes"—Dr. H. Seltzer, Department of Endocrinology, University Hospital, Ann Arbor
"Low-Cholesterol or Low-Sodium Diets in Cardiac Conditions"—Dr. D. Overy, Department of Cardiology, University Hospital
"Better Control through Portion-Ready Meat Items"—Lee McGrath, Pfaelzer Bros., Inc., Chicago

In addition, a number of panel discussions were presented, which covered

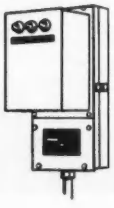
set the stage with immaculate tableware

When sparkling glasses, dishes and silverware introduce a meal, the feeling of fastidious preparation carries over into appreciation of the food itself. The patrons' good will is the reward for washing tableware with DuBois products. Regardless of your particular washing conditions, you are guaranteed crystal-clear utensils with these DuBois products:

K-O-L's—for most effective machine washing
D-LITE—for perfection in hand washing
S-U-D-S—a supersudser for pots and pans

Write for complete data on any DuBois product and DuBois Personally Engineered Service.

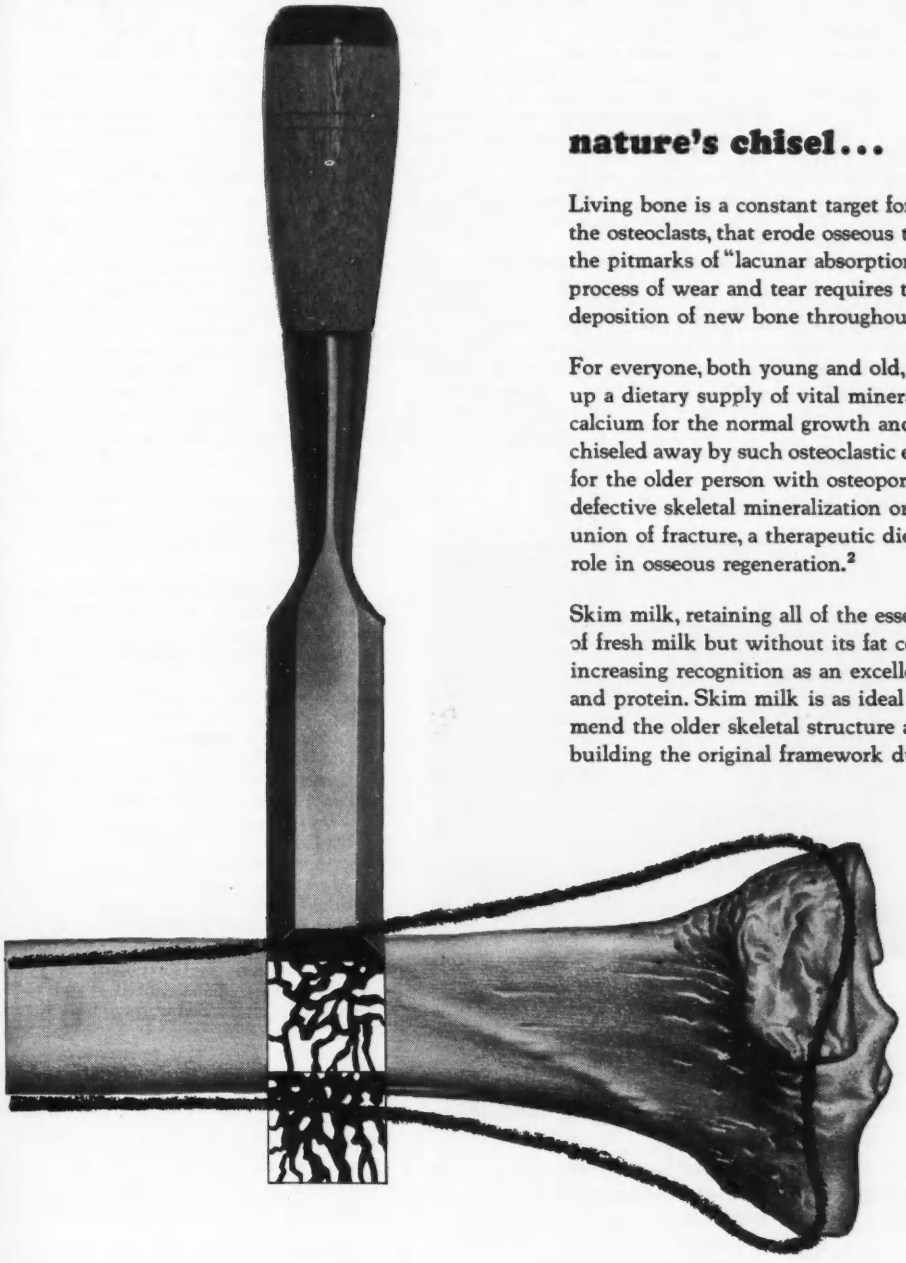
For perfect results in any dishwashing machine, contact DuBois today about the new Electronic Control. It maintains uniform solution strength, guarantees cleaner, brighter tableware.



Representatives and Warehouses from Coast to Coast

The DuBOIS Co., Inc.

Cincinnati 3, Ohio Los Angeles 33, Calif.



nature's chisel...

Living bone is a constant target for the chemical chisels, the osteoclasts, that erode osseous tissues and leave the pitmarks of "lacunar absorption."[1] This continuous process of wear and tear requires the formation and deposition of new bone throughout every individual's life.

For everyone, both young and old, it is necessary to keep up a dietary supply of vital minerals, particularly calcium for the normal growth and replacement of bone chiseled away by such osteoclastic erosion. But especially for the older person with osteoporosis, for those with defective skeletal mineralization or with delayed union of fracture, a therapeutic diet plays an important role in osseous regeneration.[2]

Skim milk, retaining all of the essential mineral nutrients of fresh milk but without its fat content, is gaining increasing recognition as an excellent source of calcium and protein. Skim milk is as ideal in helping to mend the older skeletal structure as it is in building the original framework during younger years.

Like other Borden food products, Borden's Starlac Non-Fat Dry Milk and Borden's Non-Fat Fluid Skimmed Milk are of the highest quality and are processed under the most hygienic conditions. The fluid Skimmed Milk, for example, is specially selected from designated herds known to produce a milk with greater non-fat solids and mineral content, prerequisite for improved palatability and nutritive value.

With Starlac, Borden pioneered in making wholesome non-fat dry milk available to Americans everywhere. Both types of Borden's Non-Fat milk are economical, eminently suitable for use in the home and in the hospital.

Manufacturers and distributors of BORDEN'S Instant Coffee STARLAC non-fat dry milk • BORDEN'S Evaporated Milk • Fresh Milk • Ice Cream • Cheese • BREMIL powdered infant food • MULL-SOY hypoallergenic food • BIOLAC infant food • DRYCO infant food • KLIM powdered whole milk

·The *Borden* Company
350 Madison Avenue, New York 17, N. Y.

[1] Swenson, P. C., and Jeffery, R. B. : G. P. 7:34 [Feb.] 1953.
[2] Stieglitz, E. J. : Geriatric Medicine, ed. 2, Philadelphia, W. B. Saunders Company, 1949, p. 697.

the following topics: dishwashing standards, patient instruction, problems in establishing personnel training programs, and the dietitian's role in community nutrition.

New Jersey Dietetic Association. Under the co-sponsorship of the New Jersey Division of Civil Defense and Disaster Control, the New Jersey Dietetic Association, and the New Jersey Home Economics Association, a basic orientation course in civil defense and disaster control was conducted in April and May in Newark. The course consisted of three, 3-hr. lectures and was planned to give the members of these organizations a broader understanding of the objectives, policy, and procedural operations of the civil defense and disaster control plans.

The JOURNAL has been informed that approval of the graduate program for dietitians, announced in the April issue, is still pending. If plans materialize, the work will be given by Rutgers University proper, rather than the New Jersey College for Women, as indicated in the first announcement.

Ohio Dietetic Association. The 33rd Annual Convention of the Ohio Dietetic Association, held in Columbus on April 9 and 10, was notable not only for its stimulating program, but also for the gratifying publicity it was accorded. In the two weeks prior to the opening of the convention, the meeting made headlines in one paper, and the association sponsored ten radio appearances and three television programs which featured a variety of subjects, including association activities, recruitment, reducing diets, convention program, community nutrition, and the psychology of feeding children.

The meeting itself enjoyed an attendance of 338, who heard a well balanced program which included:

"Ingredients for Personnel Relations"—Frank K. Leppert, Assistant Supervisor of Personnel, Battelle Memorial Institute, Columbus

"New Materials and Techniques for Better Food Preservation"—D. J. Ridenour, Anchor-Hocking Glass Company, Lancaster, Ohio

"Newer Vitamin B Factors"—Dr. L. J. Filer, M & R Laboratories, Columbus

"Flexible vs. Rigid Containers"—John M. Cowan, Executive Manager, National Flexible Packaging Association, Cleveland

Fern Gleiser, A.D.A. President-Elect, represented the Association and discussed national activities.

Another feature of the meeting was a workshop for officers of the local and state associations designed to create a closer working relationship by discussion of mutual problems.

The Ohio Association also announced the awarding of two $200 scholarships to Shirley Brantford, Western Reserve University, and Joan Parlette, Ohio State University, who plan to enter dietetic internships this year.

New officers for 1954 in Ohio will be: President, Vivian Lippert Laird, Miami Valley Hospital, Dayton; President-Elect, Dr. Helen A. Hunscher, Western Reserve University, Cleveland; Treasurer, Dorotha Symons, Christ Hospital, Cincinnati; and Secretary, Virginia Draim, Columbus.

Oklahoma Dietetic Association. On April 2 and 3, the Oklahoma Dietetic Association met in Oklahoma City. The program included the following speeches:

"Diet vs. Good Nutrition" by Dr. Steward Wolfe, Head, Department of Medicine, University Hospitals, Oklahoma City

"Problems of Infant Feeding" by Dr. William T. Newsom, Department of Pediatrics, University Hospitals, Oklahoma City

"Feeding the Pre-School Child" by Mary Currier, Foods Professor, Oklahoma A. & M. College, Stillwater

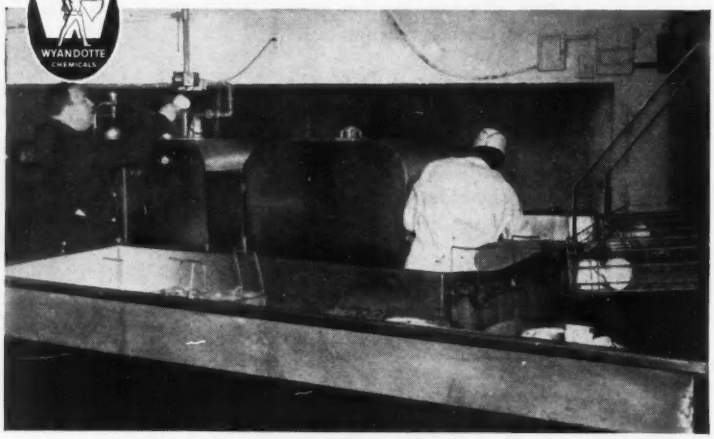
"You Are Dealing with People" by Dr. Elmore Petersen, Dean Emeritus, School of Business, University of Colorado, Boulder

"Dietetics, Its Place in Modern Mental Hospital Operation" by Dr. Hayden H. Donahue, Director, Mental Health Department, Oklahoma City

"Food with a Flair," by John Francis, Head of Culinary Trades Department, Oklahoma A. & M. College, Okmulgee.

The Oklahoma City Dietetic Association in February heard Phoebe Fowler, Director of Dietetics, Department of Mental Health, Oklahoma City, talk on

Specialists in Dishwashing Products



Claude Wilson, superintendent, adds SALUTE *to dishwashing machine.*

Famous Wyandotte SALUTE helps serve 3,000 diners a day, at "Mammy's Shanty"

People flock to "Mammy's Shanty," in Atlanta, Georgia — famous for apple pie and baked shrimp.

"We use Wyandotte SALUTE in our machine dishwasher," writes Manager Preston B. Weeks, Jr. "We have tried several other national-brand machine dishwashing products, as well as local varieties, but **Wyandotte Salute is the most outstanding dishwashing material we have ever used.** We are entirely satisfied with SALUTE's performance in maintaining clean silverware and stain-free dishes at minimum cost."

helps you wash *better*, and at *lower cost!* It even eliminates stains on plasticware! Your Wyandotte representative or jobber will gladly demonstrate SALUTE and other outstanding Wyandotte products — including **Neosuds* for hand dishwashing, and F-100*, the low "use-cost" cleaner for walls, floors, all painted areas.** Give your Wyandotte man a call today! *Wyandotte Chemicals Corp., Wyandotte, Mich. Also Los Angeles 12, Calif.*

*REG. U.S. PAT. OFF.

CLEANING THE WORLD

Try Wyandotte SALUTE yourself. You'll find — as Mr. Weeks did — that SALUTE

Wyandotte CHEMICALS

Helpful service representatives in 138 cities in the United States and Canada

Largest manufacturers of specialized cleaning products for business and industry

for baby kangaroos...

pink milk

physiologically specific

During the early stages of lactation, kangaroo milk has a definite pink coloration—undoubtedly a reflection of changes in marsupial pigment metabolism occurring in this period.[1]

for the young of man...

1. *human breast milk—*

"... the recipe of the most satisfactory food for a baby."[2]

2. SIMILAC

so similar to the milk of healthy, well-nourished mothers that there is no closer equivalent.

Supplied: Similac Powder in tins of 1 lb., with measuring cup; Similac Liquid in tins of 13 fl. oz.

1. Bolliger, A., and Pascoe, J. V.: Australian Journal of Science *15*:215 (June) 1953.
2. Gunther, M.: Brit. J. Nutrition *6* (No. 2): 215, 1952.

A QUARTER-CENTURY OF PROGRESS IN INFANT NUTRITION — M R

M & R LABORATORIES, *Columbus 16, Ohio*

the role of dietitians in the mental health program.

Texas Dietetic Association. In Dallas on April 1, 2, and 3, the Texas Dietetic Association conducted its annual meeting, which included the following program:

"Food Does Make the Difference"—Dr. Charlotte Roderuck, Associate Professor, Iowa State College, Ames

"Practical Interpretations of Human Nutrition in Research Studies"—Dr. Pauline Beery Mack, Dean, College of Household Arts and Sciences, Texas State College for Women, Denton

"Food Makes the Difference in Diet Therapy—Burn Therapy"—Dr. Jerry Stirman, Southwestern Medical College

"Personnel Makes the Difference"—Eugene deKieffer, Personnel Director, First National Bank, Dallas

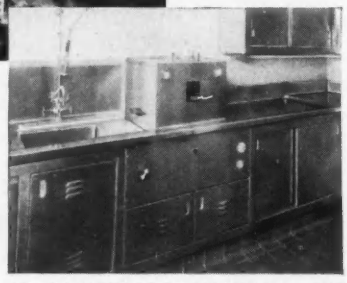
"Your Attitude Makes the Difference"—Marjorie Saunders, Director of Public Relations, Baylor Hospital, Dallas

Ruth M. Yakel, A.D.A. Executive Secretary, attended this meeting as the national association's representative, and spoke on "Association Affairs."

During the year, the Vocational Guidance Committee of the Texas Association has distributed material to 110 public libraries, including 74 city and 36 county libraries. Also part of the committee's work has been the planning of a career day in cooperation with the Women's Medical Specialist Corps of the Army which was held at Brooke Army Medical Center on April 9. Eighty-one students and faculty attended from: the VA Hospital, Houston; Texas College of Arts and Industries, Kingsville; Incarnate Word College, Our Lady of the Lake College, and San Antonio College, San Antonio.

Model Child Care Center streamlines food service with COLT AUTOSAN Dishwashing Equipment

NAZARETH
Child Care Center
Jamaica Plain,
Massachusetts

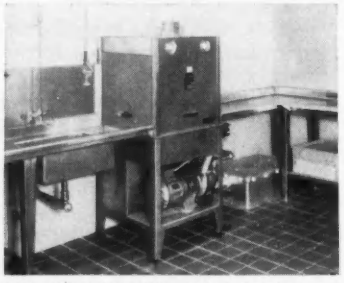


COLT AUTOSAN MODEL R-16A (900 dishes, 1500 glasses per hour) in typical cottage.

THE Nazareth Child Care Center decentralizes food service to increase efficiency, using the finest equipment available, including Colt Autosan dishwashers.

All food is cooked in the main kitchen and conveyed in hot carts to the 12 cottages, where it is served individually. Colt Autosans in cottage pantries wash and *thoroughly sanitize* plates and tableware. Soiled dishes in the main kitchen and school are cleansed by larger-capacity Colt Autosans. In every case, Colt Autosans handle the dishes speedily, in little space with little attention.

When *you* consider installation or modernization of food service, call on Colt. For complete information, write Colt's Manufacturing Company, 612 Sequassen Avenue, Hartford 15, Conn.



COLT AUTOSAN MODEL R-1A (1250 dishes per hour) in Nazareth kitchen.

Entire installation was designed, engineered, and fabricated by The McDonald Company, Boston, Mass.

Made by the makers of Famous Colt Handguns, Industrial Packaging Equipment, and Molded Plastic and Fiberglas Products

COLT AUTOSAN
DISHWASHING, SANITIZING AND DRYING MACHINES, VEGETABLE PEELERS

Association Activities

State Meetings. The following state dietetic associations are among those inviting national representatives to attend their spring meetings:

May 6—Cora E. Kusner, New Mexico Dietetic Association

May 12—Anna dePlanter Bowes, New Hampshire Dietetic Association.

A.D.A. Exhibits. The *American Nurses' Association* held its annual meeting in Chicago, April 26 to 30, with 9451 in attendance. "Achieve Your Proper Weight" was exhibited by our Association, along with give-away material. Margaret Mott was in charge of the booth, assisted by other Chicago Dietetic Association members.

The annual convention of the *American Personnel and Guidance Association* met in Buffalo, April 11 to 15. "Be a Dietitian" was displayed. Eileen Peck served as chairman, assisted by other members of the Buffalo Dietetic Association.

Welcome, Wyoming! The Wyoming Dietetic Association was affiliated with The American Dietetic Association as of May 10, 1954. President of the Wyoming group is Marticia Fox, VA Hospital, Sheridan. Affiliated state dietetic associations are now located in all forty-eight states, as well as in the District of Columbia and Hawaii.

Association Meetings. The *Library Committee*, with Elizabeth Tuft as Chairman, met April 20 and April 29 for the purpose of evaluating articles and reprints in the Lulu G. Graves Memorial Library. Such materials are classified into various subdivisions of the four work sections of the Association and are available for loan to members on request.

The *Membership Requirements Committee* held a meeting in Chicago on April 24.

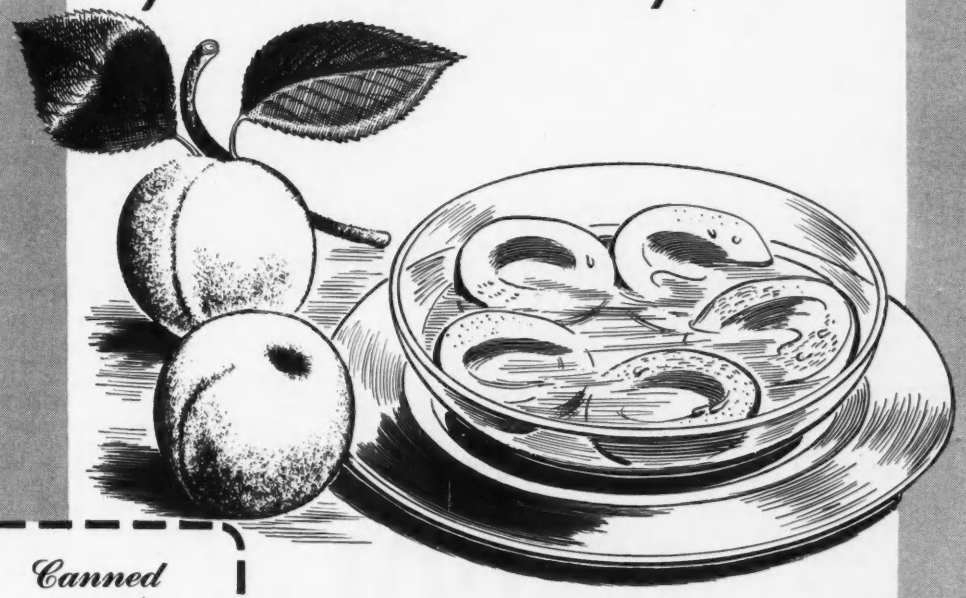
Several state dietetic associations are revising their constitutions in line with the 1953 revised state model. The *By-Laws Committee of the House of Delegates* reviewed this material at a meeting in the headquarters office on April 13.

Newest Publication. "About The American Dietetic Association" has just been released and is available at headquarters office for the following prices:

Single copies	$ .05 each
Lots of 25	1.10
Lots of 50	2.00

This attractive leaflet, done in pink and white with black accents, is replacing the maroon-colored "Descriptive

For your food file—interesting facts on Canned Apricots



Canned Apricots

Nutritive Values of 122-Gram Serving

Nutrient	Quantity of Nutrient Per Serving	Approximate Percentage of Daily Recommended Allowance*	Approximate Percentage of Minimum Daily Requirement†
Carbohydrate (available) (1)	25.0 gm.	—	—
Fat (1)	0.23 gm.	—	—
Protein (1)	0.6 gm.	1	—
Caloric Value (1)	105 calories	4	—
Calcium (1)	10 mg.	1	1
Phosphorus (1)	20 mg.	—	3
Iron (1)	0.8 mg.	7	8
Vitamin A (2, 3)	2,620 I.U.	52	65
Thiamine (2, 4)	0.022 mg.	1	2
Riboflavin (5, 6)	0.027 mg.	2	1
Niacin (4, 6)	0.4 mg.	3	—
Vitamin C (2, 3)	4.8 mg.	6	16

*Percentage based on Recommended Daily Allowance for physically active man—National Research Council. †Percentage based on Minimum Daily Requirement for adult over 12 years of age—Food and Drug Administration.

1. Food Research 11,391 (1946)
2. J. Am. Dietet. Assoc. 23,226 (1947)
3. J. Nutrition 28,107 (1944)
4. J. Nutrition 28,117 (1944)
5. J. Nutrition 28,123 (1944)
6. J. Am. Dietet. Assoc. 21,357 (1945)

CANCO

If you would like free file cards bearing similar information on peas, cherries, corn, plums, and grapefruit juice, write to:

General Research Laboratory, American Can Co.
Maywood, Illinois

The Seal of Acceptance denotes that the nutritive values listed on this card have been reviewed by the Council on Foods and Nutrition of the American Medical Association.

American Can Co., *New York · Chicago · San Francisco · Hamilton, Canada*

Folder." Its purpose is to acquaint nonmembers with the Association.

Food Administration Contest. The Food Administration Section of A.D.A. recently announced a contest to run until September 10. Competition will be on reports of 500 words or less on "What We Have Done to Improve Supervision of Our Food Service." Entries will be judged on the basis of: merit of the idea, clearness and form of presentation, and applicability of ideas in other situations or institutions. Awards will be made at the 1954 Annual Meeting of A.D.A. in Philadelphia in October. Further information may be obtained from Cora E. Kusner, Chairman, A.D.A. Food Administration Section, Colorado State Hospital, Pueblo.

News of Products and Services

Wheat Flour Institute has prepared a full-color, slide film on "The Trick of Yeast Rolls and Coffee Cakes" which is available for purchase (including narration). Although recipes are given for "home size" quantities, a number of original ideas are presented which might be adapted to large quantity operation.

A second film in the news is "Skill Counts at the Sandwich Counter," a 10-min. movie which was produced for use as an employee training aid. Also available is a full-color slide film showing in detail the steps in setting up a workable sandwich counter and in making sandwiches to order by two approved methods. A manual for the restaurant manager accompanies the film, as well as copies of a quantity recipe card and a training manual. The film was produced jointly by the *National Restaurant Association* and the *Wheat Flour Institute*, and is available on a rental basis from Ideal Pictures Corporation, 58 East South Water Street, Chicago.

A new Wearever aluminum alloy Tote Box designed for use in restaurants has been announced by the *Aluminum Cooking Utensil Co.* New functional handles permit these Tote Boxes to be stacked when full and nested when empty, thus making them adaptable for use in walk-in refrigerators. Made of drawn, heavy-gauge aluminum alloy, there are no corners, cracks, or seams to collect foreign matter, and the top edge is shaped to fit the hand, yet permit drainage. The Tote Box measures 34⅜ by 16⅞ by 12 in.

Klenzade Products, Inc., has announced that improvements have been made in Klenzade X-4, which has long been a standard sodium hypochlorite bactericidal rinse used in food plants and food service establishments. The most significant improvement is the increase in active chlorine without an increase in price. A gallon of the new Klenzade X-4 will do one-third more work than the former product, making over 500 gal. of 100 p.p.m. sanitizing solution. Also, the germicidal powers of X-4 have been increased by an 80 per cent reduction in excess alkalinity, making a much lower *p*H.

H. J. Heinz Company recently added to its line of baby foods, Strained Meats packaged in glass jars. The new products include: Strained Liver and Bacon; Strained Beef, Strained Lamb, Strained Veal, Strained Liver; and Strained Beef Heart.

A spillproof baby tumbler made of nylon is being distributed as a premium by *H. J. Heinz Company* to purchasers of Heinz Baby Foods, Strained Foods, Junior Foods, and Pre-Cooked Cereals. The new tumbler is suggested as particularly suitable for the use of children afflicted with or recovering from cerebral palsy, for tests indicated that it is almost impossible for a child to damage the tumbler with his teeth. A perforated mouthpiece on the tumbler also controls liquid flow, thus helping to prevent choking and gagging. Another new premium offered by the company is a longer handled baby spoon to facilitate child feeding directly from the baby food container.

American Can Company has released another of its attractive and useful home economics booklets, this one called *Quick Trick Cookery*. With mouth-watering illustrations done in full color, twenty-six menus which require from 15 to 50 min. are featured and accompanied by recipes. In addition, a chart guide to common can sizes is presented, garnishes and frills to dress up canned

Appetites Need Tempting?
Budgets Need Cutting?

LET MAGGI DO IT!

The meal-planner's best friend! . . . Anywhere meal-planning is a problem, Maggi's Granulated Bouillon and Maggi's Seasoning can be a big, BIG help.

Coaxes out hidden flavor! . . . Maggi's Seasoning is a highly concentrated cooking aid that multiplies and emphasizes the natural taste of food. Makes meats, casseroles, gravies, stews taste marvelous! Maggi's Granulated Bouillon Cubes dissolve instantly, add appetizing, meaty flavor.

Economical, easy to use! . . . Naturally, Maggi's cooking aids make low cost dishes taste better . . . transform leftovers into treats, all in a few seconds time! So keep these world-famous products—Maggi's Seasoning and Maggi's Granulated Bouillon Cubes—always on hand!

Let MAGGI aid in special diets, too!

Maggi's Seasoning and Maggi's Granulated Bouillon Cubes are high in protein, low in calories. Extremely easy to digest . . . even more digestible than simple foods such as toast. (Not recommended for salt-free diets.)

FREE

VALUABLE FOOD PLANNING TIPS! Quantity recipes for delicious soups, stews, meat dishes!

THE NESTLE COMPANY, Inc.
2 William St., White Plains, N. Y.

Name .....

Address .....

City ..... Zone..... State.....

MAGGI'S® SEASONING — GRANULATED BOUILLON CUBES

LILY'S RIGHT AT HOME IN ANY INSTITUTION

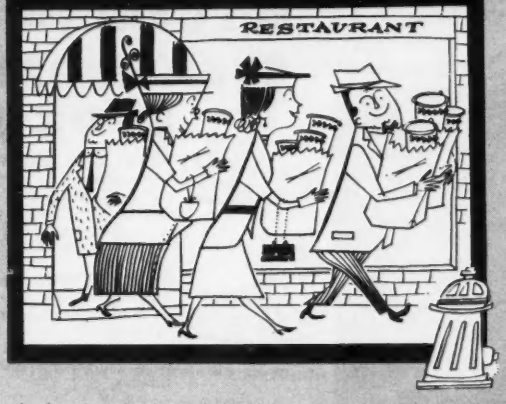
Food or beverage problems? Whatever they are . . . wherever they may be . . . Lily* has solved many just like yours!

Take a hospital:

Lily Cups save countless manhours for kitchen help. Food serving is easier and faster because Lily paper service is light, quiet and disposable. In the service of medicines alone, Lily saves innumerable washing and handling chores. Lily Cups and Containers for patient and staff food service reduces the work load . . . lessens the danger of cross contamination.

Now take a restaurant:

Lily provides portion control . . . speeds turnover during peak loads . . . trims the cost of washing, breakage and cleaning . . . even helps solve the help shortage problem. And right now, Lily is helping countless restaurants raise profits as much as 50% without setting an extra place, through the mushrooming Take Home Food Service.



To fill the widely varying needs of business, the Lily line includes more than 500 different sizes and types of cups and containers. From hotels to air lines . . . from railroads to schools . . . it pays to investigate the benefits of Lily paper service. Just mail the coupon for the whole story.

LILY-TULIP CUP CORPORATION
122 East 42nd Street
New York 17, New York
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Lily® cups

LILY-TULIP CUP CORPORATION Dept. ADA-6
122 East 42nd Street, New York 17, N. Y.

We would like samples of Lily for ..... service.

Name .....

Address .....

City .....Zone ....State .....

foods are suggested, and a number of "quick tricks" are listed. A special section in the back features recipes and suggestions for party fare. Prepared primarily for use by teachers in planning menus for food classes (all menus can be completed in a 50-min. class period), step-by-step directions are given for each item. In addition, it should be a useful addition to the homemaker's kitchen-shelf library.

Anetsberger Brothers is offering a new "ANETS Bench-Type Dough Roller" to aid in rolling pizza pie, sweet goods, and cookie doughs in a small area. With this device, the dough is sheeted to uniform thinness and texture which helps it to remain tender and alive much longer. One rolling is said to be sufficient, under ordinary circumstances. A lever adjusts the roller to produce the desired thickness or thinness of dough, with variation up to 1 in. in thickness.

A new Model DA Automatic food shaper with a capacity of molding 2400 portions an hour has been announced by the *Automatic Food Shaping Company*. The new unit can be used in preparing hamburgers, chopped sirloin steaks, veal and lamb patties, fish cakes, corned beef hash cakes, potato cakes, crab meat cakes, and sausage cakes. Other Automatic models with capacities of 20 and 60 patties a minute are also available.

Milwaukee Lace Paper Co. recently introduced several new stock designs in the Milapaco line of place mats, cocktail napkins, and tray covers. The new "Moderne" pattern, with matching place mats and cocktail napkins in a brown-and-tan color scheme, features a place mat modernistically illustrated with various food dishes and a cocktail napkin with a clever beverage motif. The "Jungle Pool" was designed to appeal especially to children; the tray cover features a brilliant array of animals which can be colored with crayon after meals.

Hotpoint Company now has a complete, 30-in. commercial cooking center which includes an oven, broiler, a surface cooker, a fry kettle, and a griddle—all five in one unit. Called "The Quintette," the unit was designed to solve many of the problems of low-cost cooking in every type of kitchen—hospital, school, industrial lunchroom, restaurant, and so on. The new Quintette was introduced at the National Restaurant Show held last month in Chicago.

Robertshaw-Fulton Controls Company is expanding its production facilities with the opening of a new plant at Indiana, Pennsylvania, where new products now being readied for the market will be manufactured.

The *Kelvinator* Home Economics Department has been rechristened and expanded into a new Kelvinator Institute for Better Living, which will embrace an enlarged program of operations, working with and for consumers, dealers, home economists, and the Kelvinator organization itself.

Metropolitan Wire Goods Corporation is offering stock racks designed for various sizes of goblets and also makes special racks for other stemware. While standard racks for tumblers, ice tea glasses, and so forth have compartments which rise only high enough to keep the glasses from contacting each other, the racks for stemware have protection for their full height.

Economics Laboratory, Inc., is introducing a "Rinse-Dry System" involving both a new product and new equipment to end water spotting on silverware, glasses, and china, and thus make possible the elimination of toweling in the dishroom. The product, "Rinse Dry," is a concentrate of a new, non-sudsing drying agent. When its is pumped into the final rinse system of a dishwashing machine by means of the new equipment, "Rinse Injector," it lowers the surface tension of the rinse water. Then, instead of rinse water remaining on the surface in droplets, it flows off utensils in thin, even sheets, immediately and completely. No dulling film or unsightly spots are left on the air-dried china, glasses, or silverware, and the tableware dries and is ready in a matter of seconds. The company claims that the Rinse-Dry System works as well with plastic tablewear as with vitrified dishes and glasses.

Institutions Magazine is planning to promote a "Visit Your Dealer Week" in an effort to serve both buyers and dealers better. It is stated that only 5 per cent of the customers in the mass-housing, mass-feeding industry ordinarily visit dealers showrooms. Most buying is done through the field salesman's advice, advertising, catalogs, and literature, inasmuch as the salesman cannot pos-

by all means..
Just set it and forget it!
"STEAM-IT"
*Operates at 15 lbs. pressure.
here's what you can do with
STEAM PRESSURE* COOKING...
TURKEY — "STEAM-IT" will cook a 30 lb. turkey automatically in 45 to 60 minutes with the fuel on only about 15 minutes in the 45-minute cooking cycle. No basting required. Ideal texture . . . moist, tender, flavorful. This method saves 2-3 hours over the old-fashioned way.
HAM or CORNED BEEF — Shrinkage, and the long cooking time required, are always a problem in the preparation of corned beef and ham. "STEAM-IT" and save 20% on shrinkage, 50% on cooking time. Cook 36 pounds of corned beef in 60 minutes; 48 pounds of ham in 45 to 60 minutes.
VEGETABLES — Asparagus . . . 30 pounds in 3 to 5 minutes. Green beans in 2 to 4 minutes! Corn-on-the-cob, onions, spinach, parsnips — the full flavor and color is retained, vitamin content is held to its highest possible point.
SEA FOOD — Ideal for sea foods, "STEAM-IT" will cook 20 pound-and-a-half lobsters in 10 minutes! Steam a half-bushel of clams in 4 minutes! 36 pounds of fillets, pre-cooked for frying or broiling in 6 minutes!
Model 3M Direct Connected. Also Available in Two-Compartment Size for Gas or Electric Operation.
COOK WITH A "STEAM-IT" PRESSURE COOKER FOR SPEED, FLAVOR, ECONOMY
Write Dept. K
Market Forge Company
Food Service Division
EVERETT 49 MASSACHUSETTS

"A SAINTPAULIA IONANTHA? FOR ME?"

The card accompanying the African violets said, "Hope you like this Saintpaulia ionantha." The signature told me the rest. It was from the patient who used to be in 706, Mrs. Olgivie. The one that loved gardening so much.

The day Mrs. Olgivie arrived she was quite distressed over the fact that she had to go on a low-calorie diet. Especially since she was fond of salads and desserts. But her attitude changed. Thanks to saccharin, I could make every meal a balanced meal and not worry about upsetting her diet balance.

The day Mrs. Olgivie left, she told me how the tempting, tasty dishes we had prepared pleased her. And when I gave her a booklet with 70 saccharin recipes, she was *really* tickled. "My dear," she said, "I'll send you a Saintpaulia ionantha, for all your help." I didn't know then what it was, but I do now.

Send for this FREE Recipe Book—"Enjoy the Sweet Things of Life"—it contains 70 tempting low-calorie recipes.

Handy for patients . . . step-by-step recipe instructions make this book ideal for use by outpatients on low-calorie diets. Order in quantity.

Look at the special features of this unusual recipe book—the only one of its kind. Send for the number of FREE copies you need.

Written for dietitians by graduate dietitians.

Includes salad dressings, pies, muffins, beverages, cupcakes, cookies, puddings, whipped toppings, custards • 43 pages of recipes • Calorie count given with every recipe • Every recipe approved by taste panel.

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SERVING INDUSTRY . . . WHICH SERVES MANKIND

Organic Chemicals Division
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Box 478, Dept. G
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Please send me copies of your saccharin recipe booklet.

Name.....*Title*.....

Business Address.....

Street.....

City.....*Zone*....*State*.....

sibly carry much of his merchandise with him for demonstration. By giving the buyer an opportunity for first-hand observation of the merchandise, *Institutions*' President, believes that the market for institutional equipment can be substantially expanded. Dates for this promotion, probably in the fall, will be announced later after dealers have been polled as to their preferences.

The *Sanitary Scale Company* has available a new, high-speed meat tenderizer. This machine features an extra-large feed slot and a rugged motor for volume tenderizing capacity. The unit is enclosed in a streamlined housing, designed to protect the user's fingers. An open arm design permits the user to work from front, left, or right and gives ample clear work area above and below. Rotary cutter action combines slitting and knitting action to tenderize properly and join the meat layers at the same time. The mechanism is easily disassembled for cleaning without hands touching the cutters.

Rhinelander Paper Company has designed a special bleached greaseproof paper for lining baking pans. Breads, pastries, cookies, and other foods may be baked right on the paper, eliminating the need for greasing. The paper also acts as a buffer where cutting is necessary. Ripco Pan Liner is produced in different weights and is available in sizes to meet customer specifications and may be had with die-cut corners.

In-Sink-Erator Manufacturing Company announces a new line of commercial-type food waste disposers. Two models are designed to permit installation in metal counter tops. A third model, with a smaller stainless steel cone, may be fastened to a counter top with an opening of only $5\frac{7}{8}$ in. diameter. Another model is made for attachment to a sink bowl with a $3\frac{1}{2}$- to 4-in. strainer opening for use in floor kitchens and like operations. Food waste is either washed or scraped directly into the In-Sink-Erator unit. When the switch is turned on, a flow of water is automatically delivered to the unit and the food waste disappears into the shredding chamber. These high-capacity commercial grinders are equipped with $\frac{1}{2}$-h.p., capacitator-type motors which operate on 115/230 volts and give a surplus power factor.

Champion Dish Washing Machine Company has in production two new dishwashing machines furnished with all welded, stainless steel hood and tank construction. An integral pump and motor unit is furnished for each tank. Both the Model 20-J (single-tank rack type) and the Model 40-J (double-tank rack type) are manufactured to meet with the Underwriters' Laboratories approval and the requirements of the National Sanitation Foundation.

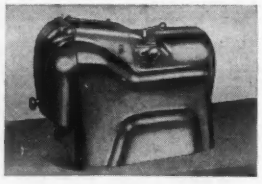
The *Saylor Homogenizer Company* announces the new Excel Hot Chocolate Dispenser for institutional use. Made of stainless steel, the dispenser has an electric, thermostatically controlled heater as well as an electric agitator. Special formula and pre-mixing eliminate the need for hand mixing. When chocolate is left overnight, a switch can be thrown to heat and mix the chocolate to the proper consistency in 10 min. The dispenser has a 3-gal. capacity, is 12 in. in diameter, 21 in. high, and weighs 25 lb.

Wyandotte Chemicals Corporation has prepared an 11 by 17 in. card titled "Hand Dishwashing Made Easy by These Five Steps" to hang on the walls of dishwashing departments. Numbered as Form 2181, the card describes the Wyandotte dishwashing rotation system to speed operations. Copies are available from Wyandotte district sales offices or from any of the company's sales and service supervisors.

Announcement was made at the National Restaurant Association convention last month that the *National Association of Margarine Manufacturers* will launch a campaign to promote the sale of margarine as a table spread by restaurants and institutions. In discussing the plan, S. F. Riepma, President, pointed out that margarine is not now enjoying as full acceptance by restaurants as the industry feels it should. It is estimated that about 10 to 15 per cent of all margarine now goes to restaurants, whereas butter is supposed to run 25 per cent. On a national average, consumption per capita in 1953 of margarine and butter was almost the same—7.9 lb. margarine and 8.7 lb. butter. The new promotional campaign will be conducted to raise the percentage use of margarine in restaurants up to that of butter, as has been done on the national average.

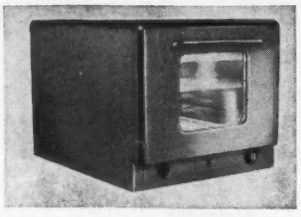
GOOD NEWS FOR DIETITIANS!

O'BRIEN FOOD SERVICE PRODUCTS SERVE FOOD FASTER, EASIER, WARMER



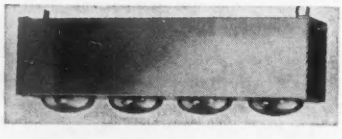
O'BRIEN DICER

(Fruit and Vegetable Cutter)
Prepares food twice as fast, at half the cost. No bruising or crushing. Food stays crisp, fresh, and colorful—APPEARS MORE APPETIZING. Speeds up to 1100 lbs. per hour. Easy to clean. Safe. Only 26″ L x 18″ H x 14″ W.



INFRA-RED ROASTER AND BARBECUE

Thermostatically-controlled infra-red heat cooks meat moist and tender in its own juice. No basting. No splattering. No turning. Practically no shrinkage. Cooks through from inside out. Holds 30 lb. turkey, or 4 chickens, or 2 hams, or 2 ribs. Stainless steel. Clear glass window.



INFRA-RED FOOD AND PLATE WARMER

Unit spotlights and heats food top to bottom. Preserves flavor. Keeps food, plates and trays warm—even if service is delayed. Choice of white or red lamps. 5000 hour guarantee.

DICER MOBILE UNIT

Stainless steel with vegetable chute and adjustable storage shelf for pans. Rubber-tired casters have brakes and ball bearings. Weighs 65 lbs. Only $29\frac{1}{2}$″ H x 32″ L x 20″ W.

O'Brien Food Service Products
3925 W. SLAUSON AVE. LOS ANGELES, CALIF